



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

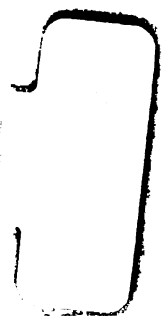
We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

3 3433 06039598 9



Contains tip. for v. 3.

VOL. IV.

THE

No. 1.

178483

PHOTOGRAPHY'S FRIEND



"LET THERE BE LIGHT."
AN ILLUSTRATED
BI-MONTHLY MAGAZINE,
Devoted to the Photographic Art,
PUBLISHED AT
No. 46 N. CHARLES ST.,
BALTIMORE.
Expose the Wrong! Maintain the Right!

January,

RICHARD WALZL, Publisher.

1874.

CONTENTS.

	PAGE		PAGE
Happy New Year.....	1	Among the Lions—DANIEL.....	15
A Trifle Monotonous—FREELANCE.....	1	Have a Photograph Taken.....	17
A New and Useful Background—F. WALLER.....	2	The Acid Nitrate Bath—J. W. BLACK.....	18
Clothes and the Man—WM. HEIGHWAY.....	3	Distortion of Photographs by Expansion and Contraction—W. BATHO.....	20
White Spots on Photograph Proofs.....	4	Note on Moonlight Effects—LUDOVICO DE COURTEN.....	20
On the Employment of Strong and Weak Baths—HERMAN KRONE.....	5	Backgrounds—GEO. CROUGHTON.....	21
Some Experiments with Developers—F. WALLER.....	6	Excessive Retouching—W. E. BATHO.....	23
Curious Customers, No. 6—WILL HEIGHWAY.....	7	Washing Prints.....	24
Sun Pictures.....	8	Herr Fritz Luckhardt.....	25
Our Illustration.....	11	Atmospheric Refraction and the Last Rays of the Setting Sun—D. WINSTANLEY.....	26
Cleaning Printing Baths.....	11	Foreign Notes.....	28
Collection and Reduction of Photographic Wastes—C. L. LOCHMAN.....	13	Miscellaneous Notes.....	29
Splitting of the Collodion Film—WM. BROOKS.....	14	The Editor's Album.....	30

THE MEN WHO ADVERTISE.

Anthony, E. & H. T. & Co. <i>Photographic Stock and Chromos.</i>	Kellinger & Co. <i>Artists' Materials, Chromos, &c.</i>
Anthony, E. & H. T. & Co. <i>Adamantean Plates.</i>	Lewis, R. A. <i>Collodion.</i>
Anderson, J. A. <i>Photo Apparatus.</i>	Magee, Jas. F. & Co. <i>Photographic Chemicals.</i>
Bachrach & Co. <i>Printers and Copyists.</i>	Marcy, L. J. <i>Sciopticons and Magic Lanterns.</i>
Collins, A. M. Son & Co. <i>Cards, Mats, &c.</i>	McAllister, T. H. <i>Magic Lanterns, &c.</i>
Cooper, Chas. & Co. <i>Albumen Papers, &c.</i>	Myers & Hedian. <i>Mirrors and Fine Arts.</i>
Clemons, J. R. <i>Paper and Varnish.</i>	Pittman, S. E. <i>Mouldings, Frames, &c.</i>
Cox, John. <i>Printing.</i>	Pattberg & Bro. <i>Frames, Mats, &c.</i>
Carbutt, John. <i>Photo-Relief Printing Co.</i>	Phenix Plate Co. <i>Ferrottype Plates.</i>
French & Co. <i>Lenses, Frames, &c.</i>	Peasel, Carman. <i>Stereoscopes, &c.</i>
Fitzgibbons, J. H. <i>Adhesive Picture Mounts.</i>	Phillips & Jacobs. <i>Chemicals, &c.</i>
Gatchell & Hyatt. <i>Stock House.</i>	Ryan, D. J. <i>Stock Depot.</i>
Gennert, G. & Co. <i>Albumen Paper.</i>	Scovill Manufacturing Co. <i>Morrison Lenses.</i>
Holmes, William B. & Co. <i>Photographic Stock, &c.</i>	Semmendinger, A. <i>Photo Plate Holders.</i>
Hale, Kilburn & Co. <i>Picture Frames, Mouldings, &c.</i>	Trapp & Munch. <i>Albumen Paper.</i>
Kelsey, C. C. <i>Banner Collodion.</i>	Woodward, D. A. <i>Solar Cameras.</i>
	Walzl, Richard. <i>Photographic Stock, &c.</i>

THE NEW YORK
PUBLIC LIBRARY
178483

ASTOR, LENOX AND
TILDEN FOUNDATIONS.
R 1906 L

THE

Photographer's Friend.

Vol. IV.]

JANUARY, 1874.

[No. 1

Entered according to Act of Congress, in the year 1874, by
RICHARD WALZL,
In the Office of the Librarian of Congress, at Washington.



APPY NEW YEAR!

Old Father Time has turned his huge sand-glass once more, and we are across the threshold of the New Year.

The Old Year, with its hopes and fears, its joys and sorrows, has mingled with the irrecoverable past. It has been fraught with great and momentous questions which the march of civilization is ever presenting; it has brought its usual share of evil and of good: let us hope that to the many the good has predominated.

Retrospection is often a sad thing, and yet it becomes our duty to look back and calmly view the past. Let us find out our errors and redeem them in the future, for "as we sow, so shall we reap."

Though there has been nothing of very marked importance presented in furtherance of our Art during the past year, there has been a steady increase of the minor details which go so far to perfect and beautify our wondrous Art. The old feelings of jealousy have given way to right good fellowship, and we can turn one to the other and wish a Happy New Year in good faith.

THE PHOTOGRAPHER'S FRIEND extends once more the hand of greeting to its friends and patrons the world over, and wishes them one and all a HAPPY NEW YEAR.

We shall endeavor to profit by the past, and we hope to be joined in that endeavor by all. Let each of us lay to our souls the kindly warnings and good teachings of the Old Year, and the new one will be a happy New Year indeed.

A TRIFLE MONOTONOUS.

BY "FREELANCE."

THE uniformity of photographic pictures in a great measure prejudices the public against them. "Dear me!" your visitor will say when looking over your specimens, "there's nothing new—the same styles year after year!" There is no doubt that this is a fault in an artistic sense, as well as being suicidal as a business policy. Uniformity, if even of the highest excellence, soon tires; in everything we recognize this, from the beautiful namby-pamby, saintly character of some men (thank God they're scarce!) down to sugar plums. Too much sweetness palls on the palate: a touch of vinegar is a wholesome change.

In photography this is a more grievous sin, and we are beginning to feel the effects of it in the apathy with which our customers view our work. We are content with the same old ovals and vignettes, and if one with a little more ingenuity and taste than his fellows starts on a new road, there is first an anxious watch placed on it to see if his effort is successful; if it is, there is a scrambling rush made by the uninventive multitude to avail themselves of the profit of the work of another man's brains.

Why don't photographers study for themselves? Have your eyes always open and your brain continually in action, and they must be sorry organs if they do not see or suggest something suitable for your business. What have we seen of late years? People sprawling over the one photographic posing chair, men and women alike. Does it seem natural for them to be taken in such attitudes? Where it would prove a graceful change in one or two pictures, carried to the extreme, as it is, it is not only monotonous, but disgusting. There is only one argument in favor of the chair, and that is one entirely unworthy of the thoughtful photographer—its being less trouble. It obviates the necessity of study and thought, and while you look on your business only in a dollars and cents light you will swear by that chair. How much better to view it as an honorable profession, worthy your best endeavors and the exercise of your brain.

Although not in favor of scenic backgrounds (perhaps because when they are used they are introduced into every picture), there is yet, I think, a great deal of scope in this way for the attainment of fine effects. Anything, in fact, rather than the monotonous, plain backgrounds, without light or shade, or gradation of any kind, on which the figure has a hard, cut-out appearance. The background should have no prominent interest, only as subservient to the figure. You want something suggestive, rather than a picture which tells its full story.

There is no need to try and discover something startlingly new,—so original as to

be unlike anything else in this world. Variety must consist in putting the ideas of other men in a new and pleasing dress; and to do this you must cultivate your eye to recognize the beautiful and your ingenuity to adapt it. For the benefit of yourself and your Art, endeavor to do away with this reproach of sameness and monotony. If higher arguments fail, believe that it will pay. The public must have it; for as Cowper says,

“Variety's the very spice of life,
That gives it all its flavor.”

A New and Useful Background.

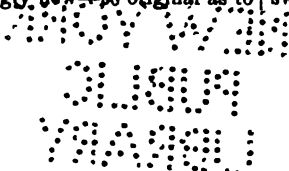
F. WALLER,
Operator with R. Walzl.

IN presenting to the fraternity this invention, I am persuaded that, if not a very startling idea, it will be found a very useful adjunct to any sky-light room. It is not a *patented* article. Finding it to work even better than I anticipated, I determined to place the idea in the hands of any one who chooses to avail himself of it.

Through the kindness and enterprise of the publisher of THE FRIEND, I am enabled to accompany this description with an illustration which conveys the whole thing to the mind at a glance.



As you will perceive, it is a semi-circular background half way enclosing a circular platform, and provided on either side with swinging screens, or reflectors. Its form



gives that effect so desirable in obtaining relief to the subject, and it gives the gradations softly and correctly. Any shade of background may be obtained by turning it to or from the light, and any degree of contrast.

The side screens may be used as light screens, to cut off or soften the light, or as reflectors to the shadow side. By the double arrangement the full flood of light may be directed upon the face, and the lower part screened. This is a great advantage for light draperies; for very black draperies they may be reversed.

Should any operator desire to make one, I give below the dimensions. It will be found especially useful to those who are working lights difficult to control. For the "Rembrandt" it is invaluable, as it gives the most perfect control of the light.

In the first place there is a circular platform of five feet diameter and ten inches high, neatly carpeted, on large rollers, and provided with handles for running it about. The background frame is seven feet high, and is exactly half of a circle five feet in diameter, so as to fit closely around the platform. It has three rollers, one at the centre and one on each side. It is not attached to the platform, because it allows of greater freedom detached, though they will both move easily together. At each side of the frame is a hinged skeleton door, in which is an upper and lower swinging screen controlled by thumb-screws. These doors are two feet wide, and extend from the top of framework to the top of platform, clearing it so as to swing in or out.

The woolen background—cloth is used, of light color—in stretching it draw only from the top and bottom, when it will take the form without wrinkles. It should be rendered opaque by being covered on the back with dark muslin. The side screens are covered with white muslin only.

The cut readily illustrates the manner of working it, and as it is alike on both sides, it may be worked equally as well in any part of the sky-light room.

This is intended only for sitting figures, and I would not advise a larger one, as when the half circle is too large, enough of the background will not show in the picture to produce the contrasted effect. The platform might be made higher where a top light only is used, or where the light is very high. There is a great advantage in time where the light is low.

I am now using one to great advantage, and I would be happy to furnish further particulars to those desiring them.

CLOTHES AND THE MAN.

BY WILLIAM HEIGHWAY.

THERE is a natural tendency with most people to judge a man by the clothes he wears; but although it is pleasant to believe that nice people are always well dressed and good looking, and disagreeable people badly dressed and possessing facial lineaments on which you can plainly read their worst passions, you and I know this is not so. But to the ordinary mind this judgment is sufficient to form a prejudice, and most of us have suffered from this very thing. How often do we hear such flattering little verdicts as "What a dirty, horrid man! I don't want him to pose me!" on sight of the dark-room man who has to make the sittings. It is not flattering to us, who, although stained with silver and pyro, and other things which leave their marks, have feelings which can be outraged, nor is it polite on the part of the speaker; but then a good many people don't think it necessary to be polite in a photograph gallery.

There are galleries where, assisted by an artist under the light, the dark-room man does not come in contact with these fastidious customers; but many less pretentious, or less prosperous galleries are there where it is imperative for the operator to make all the sittings. He cannot always look clean and tidy. Let us then try and discover if he cannot mend his position—a little, at least—and raise himself in the estimation of those

whose sight and delicate susceptibilities he offends.

It must be admitted that it is trying to the nerves of the elegantly dressed and elaborately gotten up lady to see "the artist," with his wet and silver-stained hands, advance to place her in position. Visions dread and horrible float before her eyes of a ruined dress and injudiciously applied dye staining her golden hair to shade of night hue in patches. She draws back with ill concealed disgust, and no wonder, for a carpenter appears a bright and clean being beside a hard-working, unsaided photographer. The look of disgust is not lost on our operator, nor does it tend to improve his temper already soured by photographic trials too numerous to mention. He is a little cross, a little rough, and a trifle rude, and this is not conducive to good expression in the sitter; in fact, as Sam Weller would well say, "On the contrary, quite the reverse."

To maintain a good temper, then, serves several photographic ends; to lose it tends to deepen the prejudice of the customer, and that is to your loss. Stained, dirty and ragged (for nothing is too bad for use in the dark-room), you must be objectionable to well-dressed people; but you can do away with a great deal of the unpleasantness of the situation by good temper and gentleman-like deportment.

There is a great deal of pleasure in the thought that our conduct has proved that, although our work may stain our hands and clothes, it does not injure our manners; and although we are untidy and dirty because we cannot help it, we can still be gentlemanly and courteous—in short, that clothes do not make the man.

White Spots on Photograph Proofs.

EVER since the invention of photography on paper, says the *Moniteur Scientifique*, photographers have been trying to discover the cause of those white points which so frequently appear on their proofs, destroying their value as works of art, and rendering them

unsaleable. It is commonly supposed that these spots are owing to a defect in the paper—the presence in it of hypochlorite of soda, used by the paper-maker for bleaching purposes. But, as the manufacturers claim that chemical analysis fails to detect in their goods the faintest trace of the hypochlorite, M. Ernest Baudrimont set himself to discover where the fault lay. He first made a thorough analysis of the paper and the size used in taking photographs, but without finding there the cause of the spots. One thing, however, he did discover, which helped him to find the true solution of the problem, and this was that the spots always occurred on the face of the picture, but never on the back. He next artificially produced some spots on a perfect proof, by the employment of the hypochlorite of soda, the hyposulphite of soda, and the cyanide of potassium. After drying the pictures, he applied to the spots a solution of nitrate of silver.—It was found that the white spots produced by the hypochlorite and by the cyanide remained totally unchanged, whereas those produced by the hyposulphite very rapidly changed, first to a yellow, then to a brownish tint. M. Baudrimont next touched with the silver solution spots appearing spontaneously on some pictures, and the result was, that at first a yellow point, which soon turned to brown, appeared in the centre of the spots, finally extending over their entire surface. Hence, the author concludes that the white spots occurring in photograph proofs, are entirely owing to the hyposulphite of soda, used to fix the positive impression. If the proof is not thoroughly washed after the application of the hyposulphite, or if it is dried between sheets of blotting-paper, which are impregnated with the hyposulphite, from having served the same purpose before, the white points will inevitably make their appearance.

IN making groups and using the swing-back to your instrument, be careful, in endeavoring to bring all points sharp, not to distort your picture so that those in the foreground be giants and those in the rear pigmies.

On the Employment of Strong and Weak Baths.

BY HERMANN KRONE.*

In the practice of portrait photography the richest shading in the half-tones is attainable with the employment of much iodizing salt and a strong sensitizing bath, supposing a collodion rich in pyroxiline is being used.—A thick collodion, well iodized, if sensitized in a weak bath, gives vigorous lights; but these lose their delicacy when treated with the iron developer, the shadows lacking detail in one word, a hard negative is the result, even when a long exposure is given. A thin collodion, which must not contain so much iodizing salt—as otherwise it will, in part, leave the film again—is not suited to a strong bath, but gives, when treated with weaker solutions, very detailed, and often very fine results, although never very brilliant images with rich tones. Lightly iodized collodion, which contains much pyroxiline, may be worked with strong baths, supposing these are not too fresh, and gives finely shaded pictures, but with less detail in the deep shadows; if treated in a weak bath, collodion of this kind is not suited for portraiture, as the exposure required would then be too long. For reproductions, however, and especially those of oil paintings, such collodion is of great value.

Weakly iodized, thick collodions, rich in alcohol, and sensitized in weak baths, are suitable for long exposures, because they do not show the defects usually attendant on drying films except after a very long period, while the lights and shadows are perfectly detailed, and may be intensified subsequently without losing detail or showing a tendency to fog. For treatment with an iron developer, collodion of this kind is well adapted, whereas collodion containing but little pyroxiline is, under any circumstances, best treated with pyrogalllic acid. It would appear that the energetic formation of iodide of silver in strong baths renders the collodion very

sensitive to light, but such films do not withstand a tardy exposure in a feeble light, as would be required in the photographing of interiors with a wide angle lens. For such a purpose a weak bath is desirable, whether the collodion contains much iodizing salt or little, or much or little pyroxiline in its composition. In such very lengthy exposures in a weak light, the strong bath solution remaining upon the plate would attack the iodide of silver much more than a weak solution, because the evaporation of moisture will work more injury the more concentrated the silver solution is. The iodide of silver produced from a weak bath would remain for a much longer period in a constant condition during the exposure, and thus clearer shadows would be produced, while the intensifying of the negative afterwards can be pushed much farther if necessary.

It is possible, however, to unite the advantage of a strong and weak bath upon one and the same plate if both kinds of baths are used one after another. In the same way as it becomes desirable to sensitize in two baths, in order to wash from the plate a deposit of organic matter resulting from the first bath, by the application of a fresh solution, so the plan is to be recommended in all cases where a long exposure is to be given. After sensitizing in a strong bath, which gives a more sensitive film, the plate is put into a second and weaker solution, which has not to be acidified, and moved about therein, after all greasy markings have been removed in the first bath. The sensitiveness of the film is, it is true, insured by this plan of operating and especially if the second bath is at all acid or composed of too weak a solution. If a seven to eight per cent. bath is employed in the first instance, then a five per cent. bath should afterwards be used for exposures of several minutes, while in case it is desired to preserve the plate moist for an hour or so, a four or four and a-half per cent. bath is the best, supposing the collodion to be one of medium consistence. When thin collodion is used, both solutions should be of lesser strength. The slight diminution of sensitive-

* HZL 108.

ness is quite compensated for by the superior clearness of the results; for this reason the lack of sensitiveness is not noticeable except in working with large masses of light, or powerful lenses. In all cases where a long exposure is necessary with weak light and small diaphragms—as, for instance, in the taking of interiors—the employment of two baths is recommended, as the sensitiveness of the plate continues for the duration of many hours, whilst a plate sensitized in one strong bath, although possessing a more active film in the first instance, is one in which the activity decreases with time, and is not suitable, therefore, for long exposures in a weak light.

Temperature plays a very important role in this diminishing of the temperature after treatment in a strong bath, or its preservation in a constant condition after bathing in a weak or second bath, as the case may be. It is, indeed, quite natural that the evaporation of moisture from the solution left upon the plate goes on faster when plates, baths, atmosphere, dark slide, and camera are of a high temperature. This circumstance must always enter into our calculations in every case, and thus, in hot climates, or during the summer, we should work with weaker baths than when manipulations are conducted at a low temperature.

Some Experiments with Developers.

BY F. WALLER,
Operator with R. Walz.

HAVING after trials of various other reducing agents concluded that the iron, or those based upon iron, were the better, I shall confine myself to iron developer, with some trials of the various additions recommended.

The double sulphate of iron and ammonia did not present any advantages over proto-sulphate, after repeated trials at various strengths.

Pyro or gallic acids, for the wet process, are slow in comparison with iron. Epsom salts was tried as recommended, without any marked effect; indeed, beyond possibly neutralizing some portion of the acid, I can see

nothing to be gained by its addition. A smaller quantity of acid would, I believe, produce the same results.

Acetate of iron worked well, and very suitably for ferrotypes, giving excellent whites. It is prepared by adding one-half the quantity of acetate of soda that there is iron used.

The well known method of keeping a stock solution saturated or very strong of sulphate of iron in water, and testing with an hydrometer, is handiest, the oxydization being of no harm, if not of some use. As a gauge for those who have never tried this simple plan, an ounce of iron to a pint of water will test about twenty grains strong.

Alcohol is unnecessary if the bath is in the proper trim, and acid should be used sparingly; the less the better. There is no advantage gained by a strong developer, and the results are uneven and harsh.

As a rule for the plain iron developer fifteen grains strong, one ounce of acetic acid to every sixteen ounces of solution, and mixed immediately before use.

The formula which was found to possess the most advantages was an original one, I believe. To every sixteen ounces of iron solution, fifteen grains test, add two ounces of saturated alum solution, and from one-half to one ounce of acetic acid. The alum will be found to increase the reducing power, and the development may be safely carried to almost any extent without danger of fogging. Besides giving a very soft, clean effect, it is useful for children and short exposures, and on white draperies a decided success.

A new developer is what we want, and who will step forward and supply the want? Instantaneous portraiture lies in that direction. In the meantime, let us try to improve upon our old stand-by, sulph. iron. Alum will be found, I believe, a slight step in the right direction.

ENDEAVOR to have the object at which the sitter is to look of the proper size and the right distance off. A dark photo, 4-4 size, is as good as anything.

CURIOUS CUSTOMERS—No. 6.

The Holiday Group.

BY WILL HEIGHWAY.

THE holidays! Happy time, abounding in smiles and fun, good humor and frolic. Friends are united, and aching hearts made glad in reconciliation and good fellowship. Father Christmas comes with his genial face and keen, biting air—not chilling—oh, dear, no! bless his honest old soul, not chilling! Snow and ice but add to the pleasures of the season. Men under the influence of the time forget all their business cares and losses, and delightedly allow themselves to be plundered by young, gay-hearted bands of brigands. Mothers (God bless them!) plan with desperate artfulness how to disguise their kind hands in bestowing gifts through the convenient medium of Santa Claus—but bless our innocent heart! how sadly we are digressing. Our business is with the family group—quite enough to engross all our attention, we can assure you.

To see them as they troop in is a goodly sight—that is, to any other than a photographic eye, for we are a grumbling, morose lot! There is the mother, fond, foolish and sweet tempered; but all her best holiday humor is tried by the antics of little Frank, who is—well, all children are troublesome; and papa has under his charge little Bessie and Georgie. Aunt Maria has in tow Harry, the second in age and the first in mischief. Annie, who is quite a young lady, possessing a sweetly preposterous sense of importance as the eldest of the family, distributes herself generally in attending to the wants of her brothers and sisters. Mr. Richard, in stick-up collar and a high hat, much too important to walk with the youngsters, brings up, in dignified form, a solid rear guard, he and his cane in company.

Well, there are nine of them; and will Mr. Photographer please to place them in nice positions? for this is a most important picture, including all the family. Two or three little tears trickle down mamma's cheeks as

she thinks of little Reginald, who was included in last year's picture, and is now among the flowers gathered by the Divine hand. She wipes her eyes with a subdued happiness as she thinks of the blessed promise of the season.

Mr. Photographer, who has had the prospect of this group weighing like a nightmare on his mind for the past two days, groans as he looks at the unpromising material, and finds all his plans for grouping vanish into thin and empty air. However, he knows it has to be done, or he loses a good order; and heaven knows he cannot afford to do that in the present panic times; so at it he goes with commendable zeal and meets with gratifying success. The difficulties are innumerable, but one by one they go down before his perseverance and skill like tenpins before a well-directed ball. Certainly, Mr. Richard cannot be induced to forget his collar, which he nervously twitches every half minute; and it might be better if Frankie would not persist in swinging his legs, but that is overcome by resting those restless mottled extremities on a stool. There are, too, some misgivings that Harry's love of mischief will evince itself at a momentous crisis and ruin all; but papa has angrily warned him of dire consequences, so that now he is as sober as a judge—in fact, rather more so, as high judicial dignitaries like their little joke.

"Plate!" roars Mr. Photographer, in such a state of suppressed excitement that he could knock Pyro, the operator, down, if he is not quicker; and out comes the plate.

"Now then, children! Quiet as mice, my little dears. Watch for Santa Claus," says Mr. Photo, cheerfully.

"Oh! that's too thin," Harry mutters.

"Harry! don't be vulgar," papa says with great sternness. "If you do not keep quiet I shall punish you severely."

"Am I all right?" asks Mr. Richard, with a wrench at his collar and a caress for his "moustache"—a sickly, weedy growth.

"All right now. Quite still, please," agonizedly admonishes the feverish artist.

"Just see that you get that moustache of Dick's nice and distinct, or the picture won't do," from Harry, unable to restrain his mischief-loving propensities.

"Harry, for my sake keep quiet; there's a dear boy; and do leave your brother alone," pleads mamma.

Dick mutters vengeance against his tormentor, and Mr. Photo perspires with dread for the result.

Now they're all quiet; a word of caution, twenty seconds of suspense, during which Mr. Photographer and the watchful Pyro dare hardly breathe; and just as Harry bursts into a big sneeze the cap is put on the lens—just in time. The deed is done, the slide restored, and the plate is taken into the dark-room.

"Is it all right?" asks paterfamilias, and the maternal hopes it is, for the dear children were all so good. Mr. Photo devoutly hopes all is well.

"All right!" shouts Pyro, husky with excitement.

Was there ever such good fortune? It's unparalleled! It's wonderful! Was there ever such a picture? Beautiful! beautiful!! beautiful!!! Frankie certainly moved his legs a trifle, and Mr. Richard's expression is rather of the smirk order; but the moustache is quite distinct, so he is satisfied. Every one is satisfied, especially Mr. Photographer as he sees the last of the family group trail out of the door.

SUN PICTURES.

THE progress of this beautiful Art can hardly be more aptly illustrated than by the single fact that the method at first adopted, only a comparatively few years ago, for procuring daguerreotype portraits, required that a person should sit without moving for twenty-five minutes in a glaring sunshine. The advancement, therefore, as shown in the almost instantaneous process of the present day, is indeed most striking. In the first instance, as is well known, a concave mirror was employed to concentrate the rays of light on the plate, instead of a lens, the ob-

ject of this being to obtain a greater number of rays, and thus to form a brighter image. The means had yet to be discovered of making the mercury adhere to the plate, for a feather would brush it away. Soon afterwards, however, M. Fizeau ingeniously contrived to fix the images on the plate by gilding it; this was done by pouring on to the plate a few drops of a diluted solution of muriate of gold, and holding it horizontally over the flame of a spirit lamp, by which means the gold was deposited, and formed a thin, beautiful film of the metal over the surface, making the picture more durable and effective. Of course, the portraits taken at this early period were deficient in expression, but the Art was hailed, and deservedly, as a wonderful triumph.

An anecdote may here be related, illustrating the struggles and trials of an inventor. About the year 1838 a lady in great distress of mind applied to a philosopher about the mental state of her husband. He was declared to be in a state of approaching insanity, for the idea had taken full possession of his mind that he could produce pictures by aid of the sun, without assistance from any human artist. The fears of this lady, however, who was the wife of M. Daguerre, were presently stilled, and in a short time she had the gratification of witnessing the realization of her husband's conception in beholding on the polished surface of a silver plate the first sun picture, whose lines so delicately drawn, and shades so harmoniously combined, at once impressed the observer that a greater artist than man had there been at work—an Art of almost wondrous and magical effects, but at that time in its utter infancy, and therefore very imperfect in its results.

But photography on paper differs in many important respects from the daguerreotype process, though requiring, like the latter, the camera and the lens; and to such men as Talbot, Claudet, Fizeau, Draper, and a few others, is the world indebted for the astonishing developments made in this line. To Mr. Archer, an English chemist, is due the

honor of that most important and beautiful improvement, the collodion process. It was simply making available the well known fact that gun-cotton will dissolve in ether, forming a very remarkable fluid, which, on being poured on a glass plate, evaporates rapidly, and leaves behind a delicate film, finer than the finest tissue paper—more delicate, in fact, than the membrane of a fly's wing. It occurred to several persons to employ this substance in photography, and after a good deal of care a most exquisite process was found out. The pictures produced by this process were called negatives—a good term for such a production, it being the very negative of nature—the exact opposite—what is white in nature being black here, and the reverse. But in reality this contrariety is an immense advantage, the negatives serving so admirably for transferring positive pictures on to sensitive paper.

To M. Claudet, who, from the earliest time of the daguerrean invention displayed great genius and ability in perfecting the various processes, is due the credit of having first perceived the necessity of aiding the artistic effect of his representations by subsidiary adjuncts of a different kind. He it was who originated the practice of placing painted backgrounds behind the persons whose portraits were to be taken; thus an infinite variety of scene might be afforded by the operator simply providing himself with a few subjects skilfully adapted to the requirements of the occasion. By him, also, was devised that extremely pleasing adaptation of mechanical adjustments for bringing many miniature representations of the same individuals under different aspects, to be impressed in regular compartments of the same plate and framed together.

Without undertaking to treat in detail of the history or principles involved in the numerous specialties of this wonderful Art from the time of its introduction to the present period, some of the most interesting developments of the process of recent date will here be spoken of.

In the matter of engraving, photography

is destined to peculiar service, and in the production of engraved surfaces in metal by this means encouraging progress has been made. To accomplish this a pure silver surface is exposed to the action of iodine, a film of iodide of silver being thus obtained. The plate is then exposed in the camera, and is next submitted to the action of an electrotype battery. The copper only attaches itself to those portions of the plate which have been rendered conductors of electricity by the action of the light, and a well-defined image in copper is the result. The plate is next dried, and etching-solution poured over it, composed of sulphuric acid and nitrate of potash. This attacks the shadows or exposed portions of the silver plate, while the copper parts are not affected. After etching to the required depth the copper may be removed by *aqua regia*, leaving a finely etched image on the silver plate.

In the beautiful process known as carbon printing some exquisite productions, equal in every respect to the finest silver prints, are now obtained. The operation is ingenious and interesting. An endless band of ordinary paper, about twenty feet long, is prepared by pasting its two ends together; this is placed upon two rollers, one above the other, and ten feet apart, and provided with the means of adjustment for the proper tension upon the paper. The band of paper is now put in motion by rotating the rollers, and at the same time a warm bath of melted gelatine, with any desired pigment, carbon, or color, with or without a portion of glycerine added, is placed underneath the lower roller, and in contact with the surface of the paper as it passes under the bottom roller. The revolving paper licks up the colored gelatine, rises up, passes over the upper roller, and descends again into the bath for another layer, the first layer having during its passage become partially set or solidified. By attention to the temperature of the bath, the speed of the rollers, and the temperature of the room, any desired thickness of coating may be given to the paper. By changing the vessel containing the pigment, different

layers of colored pigment may be placed on the tissue, as the paper thus prepared is called.

The tissue, when dry, is ready for use, and it is rendered sensitive in the following manner: The required piece of paper is placed in a bath of bichromate of potash solution, formed by dissolving one part of the salt in ten parts of water; in about one or two minutes the tissue becomes limp, but not sticky, and it is at once taken out and hung to dry in a dark place for about eight or nine hours. A slight dusting of French chalk is given to the tissue, and it is then placed in the printing-frame, with the gelatine side next to the negative. In testing the length of the exposure, a piece of the albumenized paper is printed to a certain shade of color, which is assumed as a standard and called a unit; the exposure required is given, as experience indicates, to one or several units of light, and the amount once known, successive prints may be taken from the said negative with a good degree of certainty.

In another process, almost as rapid as type printing, a sheet of gelatine is placed upon a thin sheet of mica, and soaked in a bichromate solution; it is then placed with the mica side to the negative and exposed to the light, and after exposure the soluble portion of the gelatine is washed away and the picture is thoroughly dried. This picture, which is in relief, is placed on a clean plate of lead or other soft metal, hydraulic pressure is applied, the gelatine picture is impressed, and the mould thus obtained is used for printing in the following manner: A few drops of warm gelatine, mingled with any desired pigment, are placed upon this mould, and a moderate pressure is applied with a glass plate or other flat surface; the superfluous gelatine exudes, leaving only the depressions filled with the ink, and the varying thickness of the pigment gives the light and shade of the picture, the effect being remarkably beautiful.

The elements of mezzotint engraving are, in a method as simple as it is ingenious, most

attractively developed. At the same time that the image of the object is thrown on the prepared collodion plate in the camera, the image of a sheet of white paper, covered with closely-ruled black lines, is thrown upon the same plate, and at the same time, through another opening, from an exactly opposite direction. A negative is thus obtained capable of printing a positive picture having the required lines in the higher lights obliterated, and intensely developed in the deep shadows. A gelatine picture printed as in the preceding process gives the matrix from which an electrotype plate is produced, to be printed from as an engraved copper-plate.

Photographs of the moon and sun were among the earliest achievements in the applications of this Art to astronomical purposes, and a photograph of the sun exhibited to the American Academy, by Professor Winlock, in the spring of 1870, and which was taken with a lens of forty feet focus and four inches aperture, excited great interest. It being difficult to place a tube of this length in an inclined position, it was laid horizontally, and an image of the sun reflected into it by a plain mirror of unsilvered glass. When this mirror was blackened on one side it became heated to such an extent as to shorten the focus of the lens nearly three feet. The image obtained was about four inches in diameter, and free from the distortion produced by an eye-piece. The instantaneous exposure was effected by passing a diaphragm with a slit in it between the lens and the mirror, a better effect being thus produced than by placing it near the plate-holder. The lens was not achromatic, its slight curvature rendering this unnecessary. It was corrected for spherical aberration by means of an artificial star, produced by a soda-flame and a collimator of an aperture slightly greater than that of the lens.

It has even been found practicable to register the action of the human heart by means of photography. The device by which this result is attained consists of a thin india-rubber bag, to which a short glass tube is at-

tached; sufficient mercury is poured into the apparatus to fill the bag and a portion of the tube, and the instrument is placed over the heart of the person to be examined. Thus arranged every pulsation of the heart is indicated by a corresponding movement of the mercury in the tube, and by suitable photographic apparatus, provided with a moving sensitive slip of paper, a perfect registration of the extent and rate of the pulsations is obtained.

Even the submarine regions are made subject to the power of photographic action, as has been most ingeniously demonstrated by Professor Agassiz. In order to determine how far those regions are pervious to light, he took a plate prepared for photographic purposes and enclosed it in a case contrived so as to be covered by a revolving lid in forty minutes. This apparatus was lowered to the required depth, and at the expiration of the period stated was drawn up and developed in the usual way. Evidence was thus obtained of the operation of the actinic rays at very great depths.

But it would require a volume to set forth the many remarkable applications and processes, even of comparatively recent date, involved in this astonishing Art. Something, however, may here be added in regard to the rapidity of photographic action. It is estimated that 1-27,000th of a second is sufficient to fix the solar image, yet this is a long time in comparison with that in which photographs are taken by the electric light. Experiments have shown that the duration of the illuminating spark does not exceed the 1,000,000th of a second, yet a clear and distinct photographic image is obtained by a single electric discharge. By this means may be shown the real form of objects to which a deceptive appearance is given by their rapid movement. Thus, if a wheel on whose side any figure is drawn in conspicuous lines be made to rotate with the greatest possible velocity, the figure will present to the eye only a series of concentric bands of different shades; but let it be photographed by the electric flash while in motion, and the wheel

will appear stationary, with the figure perfectly well defined.—*New York Times*.

OUR ILLUSTRATION.

We present to our subscribers in this, our first number for the new year, one of the finest specimens of photographic portraiture.

While we were at Buffalo last summer, it was the unanimous opinion that the work of Mr. J. Barhydt was among the very best exhibited at the Convention. We applied to him for an illustration for *THE FRIEND*, and with gentlemanly good feeling and generosity he replied by sending us gratuitously the excellent negative from which the illustration which adorns this number was printed. The faultless arrangement of light and position, as well as the exquisite retouching, will strike all who examine.

Mr. Barhydt, though young in years, as a photographer may well challenge comparison with long-tried operators; for these pictures, with those exhibited at Buffalo, stamp his productions as inferior to none.

The prints were made in the photographic printing department of Richard Walz's National Emporium, Baltimore, on Morgan's extra rose-tinted paper, with the following formula: Nitrate silver, 5 ozs.; nitrate ammonia, 5 ozs.; water, 60 ozs.; filtered. Float the paper a minute and a-half, and dry by gentle heat; fume about fifteen minutes. Wash the prints and tone in the following solution: 1 oz. sat. solution of borax to 6 ozs. water; add a pinch of salt and sufficient gold to tone with. After toning, wash the prints and fix in saturated solution of hyposulphate of soda.

CLEANING PRINTING BATHS.

So MANY plans for cleaning old printing baths have been proposed it would scarcely be reasonable to expect any novelty in the treatment to be recommended; but, since some of our correspondents appear disposed to old methods of cleaning with kaolin and similar bodies, it seems desirable to offer a

few remarks on one or two much less wasteful and equally satisfactory processes by which the desired end may be attained.

The process which we have ourselves employed with great advantage is the permanganate method; but a friend of ours who has had very large experience in treating baths—in fact as regards quantity much larger experience than we have had in this particular direction—recommends very strongly the carbonate of soda process as being effective and very economical. Under these circumstances we shall say a few words about both methods.

The permanganate treatment is exceedingly simple. We take a discolored bath, and render it neutral by the addition of carbonate of soda solution until a slight permanent precipitate is produced, and then add a small quantity of Condry's solution of the permanganate of potash. The quantity added is not very material, but we may employ, as a rule, about a drachm of the Condry liquid in the treatment of each pint of bath. However much discolored the liquid may be this amount is nearly always sufficient.

The bath is well shaken with the discolouriser, and then allowed to stand in a warm place for an hour or so. A precipitate speedily forms, consisting in great part of peroxide of manganese, resulting from the decomposition of the permanganate by the organic matter in solution; at the same time alkali is set free, and this, of course, precipitates some oxide of silver, which falls with the peroxide, and the two in precipitating carry down all the coloring matter not previously removed by the chemical action of the permanganate, and a clear, bright liquid is left. It is scarcely necessary to add that filtration is desirable for the removal of the deposited matter, though some prefer to leave the bath to stand, and then draw off the clear liquid. The result in either case is eminently satisfactory.

If the amount of permanganate employed happen to be much in excess of that necessarily added, the additional quantity would tinge the liquid pink, and seriously discolor

any paper floated upon it, but this tint is fortunately removed with the greatest ease by the filtration of the liquid. The filter paper decomposes the permanganate rapidly and removes it from the liquid, the latter passing through the paper bright and clear.

We now come to the carbonate process. This consists in the addition of carbonate of soda in sufficient quantity to produce by double decomposition a very sensible precipitate of carbonate of silver, and this substance in falling carries with it the organic impurities. The precipitate easily subsides, and leaves a clear and colorless supernatant liquid.

Our friend considers that the most economical plan is to avoid filtration, and simply draw off the clear bath from the deposit. This may be, and no doubt is, the case when the deposit is added again to a discolored bath in a new operation; but we should prefer a rapid filtration as the addition of the residue to a bad bath only tends to injure the latter by the addition of soluble products of decomposition of the organic portion of the precipitate not afterwards easily removed by the silver treatment.

There can be no doubt that the carbonate method is a good and effective process, and far superior, on the grounds of convenience and economy of time and material, over the old kaolin treatment; we, therefore, should hope that our readers will not be reduced to the necessity of burning *THE BRITISH JOURNAL OF PHOTOGRAPHY* in order to obtain the china clay in the ashes, because they have a more simple method at hand, the only requisite being "washing soda"—a substance, we need scarcely say, which is everywhere obtainable at an infinitesimal cost.

KEEP a separate vessel for every solution, and a separate bottle and funnel for each distinct purpose. Much time and trouble in cleaning dishes and bottles will be saved, and no end of uncertainty removed.

Of the two errors, under-exposure is worse than over-exposure.

Collection and Reduction of Photographic Wastes.

BY C. L. LOCHMAN.*

1. ALL clippings of silvered paper, old filters, paper charged with drippings from silver solutions, &c., should be kept in a suitable box; and when a sufficient quantity has been collected—say from ten to fifteen pounds—they should be reduced to ashes in the corner of a clean hearth, by having a little square place built up with a few loose bricks. Throw into this place a few handfuls, set fire to them, and add the remainder gradually, while keeping up a pretty good fire. When all the waste has been burnt in this way, keep the ashes in a pile and let them be converted into grey ash. I am particular in describing this process, as the future success of reduction depends very much on the complete combustion of the waste paper, so that very little charred paper is left, all being reduced to grey ashes, which consist principally of the silica of the paper and partly reduced silver.

2. All the washings of the prints may be collected in a suitable vessel, and the silver precipitated as a chloride by means of common table salt; too much salt should not be added at a time, as the chloride is soluble in a large excess of salt. When a sufficient quantity of chloride of silver has been collected, drain it on a muslin filter and dry it thoroughly. Treat in a similar manner the washings of negatives and the waste developing solution; or both may be precipitated together in a vessel—say a common tight barrel cut in two—which should be kept in the dark room. The clear liquid must be drawn off from time to time, by means of a siphon or a tap placed three or four inches from the bottom. The precipitate consists principally of chloride of silver.

3. The hyposulphite of sodium, or fixing solution, should be collected separately in a capacious stone jar, and the silver thrown down by keeping a piece of zinc constantly

in the liquid; and when the jar gets full of solution, the supernatant liquid is poured off. When a suitable quantity has been collected, drain as the chloride, on a filter, and dry. When perfectly dry, place this waste, which consists of sulphide of silver and metallic silver, in a sand crucible—an old one that has been used for reducing silver will answer—and expose to the heat of a common stove, merely to expel moisture and sulphur, or in other words, to roast it.

4. Waste toning or gold solution is more economically collected by pouring it in a shallow dish and evaporating it to dryness on a stove or in the sun. This consists of the various salts used in toning, generally bicarbonate of sodium and chloride of gold, the latter being more or less reduced to a metallic state. The soda will be useful as a flux in the operation of reduction.

Reduction.—The reduction of the wastes to their metallic form is done in a very simple manner, and with perfect success if the following method is carefully carried out: A common stove—one with an egg-shaped cylinder, or one having a similar open fireplace—will answer exceedingly well if it has a good draft; this latter is an essential. The fuel should be either common anthracite or bituminous coal or coke. The best flux for the various wastes is simply salt of tartar (carbonate of potassium). A sand crucible of the capacity from a pint to a quart, a pair of tongs, a small scoop with a long handle—an iron ladle will answer—and a common poker, are all the necessary implements.

Build up a fresh fire in your stove, introduce the sand crucible, which has been previously filled to the top with an intimate mixture of your waste (either of one kind or all mixed together), with two or three times its weight of salt of tartar. Put coal around the crucible as high as the top, and give the stove its full draft. In the course of one or two hours the contents of the crucible will melt into a liquid mass; you may then add with the scoop more waste, mixed as above with salt of tartar. This has to be done very gradually, or the gases, set free, will

* *Scientific American.*

- cause the crucible to boil over. In this way a quantity as large as that first introduced into the crucible may be added. When the whole mass assumes a liquid form, try with a hot poker whether the mass is homogeneous; if it has tough lumps in it, add cautiously some salt of tartar, keeping up a strong heat in the meantime; and when the mass becomes uniform, remove the crucible from the fire, taking a firm grip with your tongs, and either pour out the mass into a dry iron vessel, or set the crucible on the front of the stove or on a brick to cool. When cold, you will find the metal in a button either in the bottom of the crucible or the inner vessel, as the case may be.

I must not forget to say that the gold waste collected as stated above should be mixed with the other waste, and the soda contained therein will answer as a flux in connection with the salt of tartar; and the gold mixed with the silver can be separated as directed further on.

The process of reduction takes from three to four hours, and a strong white heat must be kept up. The materials must be perfectly dry. No small globules of silver should be found interspersed in the flux. If they are found, it is because the heat was insufficient, or the crucible was removed too soon from the fire. The paper ashes should furnish one-half or three-fourths their weight of metallic silver. One and one-fourth to one and one-half parts of chloride will yield one part of silver, and the other waste from one-half to three-fourths its weight.

Conversion of the metals into nitrate of silver and chloride of gold.—Dissolve the metal in a porcelain dish, in a chimney place, by adding two and one-half parts of commercial nitric acid to two parts of the silver; use the heat of a very small gas jet or small kerosene lamp placed under the dish. To prevent the projection of liquid from the dish, invert a glass funnel over it, resting just inside the edge of the dish. When the silver is dissolved, remove the funnel and evaporate with a stronger heat until dry. It may be used in this state for

photographic purposes, or the mass may be dissolved in water, poured off from the black sediment (which consists principally of gold), filtered and evaporated again, until a pellicle begins to form on the surface; and then, being removed from the lamp, it is set aside to crystallize into nitrate of silver. The mother liquor may be used in solution, or again evaporated to crystallization. The gold remaining in black powder is converted into a chloride by adding to it a small quantity of *aqua regia* (nitric acid one part and muriatic acid three parts) in a glass or porcelain vessel, and evaporating to dryness over a water bath.

Splitting of the Collodion Film.

BY WILLIAM BROOKS *

SPLITTING of the collodion film on drying is a source of great annoyance to photographers in general at this season of the year, through not being able, perhaps, to give sufficient exposure, and being obliged to force the development on account of the inactinic power of the light, and various other causes too numerous to mention.

I have for some time past been able to avoid this evil with the utmost certainty, which is very simple. I do not think it has ever been published.

I have brought with me two plates this evening which I think will be a positive proof to all of its efficacy. It is well known that the part of the film which is free from the deposit of silver is the part that splits or drying. In the two plates that I have brought with me I have gone to extremes. In the first instance I was not very particular in cleaning and polishing the plates (which goes a great way to cause the evil); then again I have given short exposure in a dull light, and forced the re-development; and the subject photographed was a piece of white cardboard in the centre of a black velvet focussing cloth, the deposit of silver representing the card being in the middle of

* Read before South London Meeting.

the plate, the black velvet being free from deposit (bare glass), which would split and leave the glass under ordinary circumstances; but in this instance the whole of the film remains perfect in every respect after being rapidly dried by the fire (being another method of encouraging the evil).

The remedy is this: After the plate has been developed, intensified, and fixed in the ordinary way, should any iridescent markings be seen in the transparent parts of the negative—which is almost a sure sign that it will split—stand the plate up on end to let all the surface water run off, so that it is not seen on the surface; but before any part of the film gets dry, take the plate and pour over it ordinary methylated spirits of wine—on and off—so as to wash out all the water from the film; it may then be set to dry without fear. If it is a very bad plate, it may be varnished first with a very thin varnish while the plate is still wet with the spirit, and dried rapidly by the fire, and then varnished again with the ordinary varnish in the usual way.

The methylated spirit seems to restore to the film the elasticity which it originally possessed before the application of those powerful astringents, the developers.

I hope that the few practical hints which I have given here may prove of service to photographers, which I thought would be a good subject to bring before the Technical Meeting of the South London Photographic Society of 1873.

AMONG THE LIONS.

BY DANIEL NO. 2.

CLOTHED in the sable garments of obscurity, wandering amidst the turmoil of the metropolis, an idle stranger, I ventured not to "beard the lions in their dens," but to approach them in the character of a photographic interviewer bent upon getting and giving some knowledge from the photographic "big guns."

I wended my reportorial way first to the gallery of Mr. Ronysa, so well known to all

art lovers. Over a store replete with musical boxes and the like, up a stairway scarcely embellished with pictures, I soon found myself gazing through the glazed door at the multitude of pictures within. As I opened the door there stepped toward me quickly a rather undersized gentleman with a rather oversized moustache. A fur cap sat on his head with jaunty air, and his hands were in the pockets of a pea-jacket. I immediately recognized Mr. Ronysa. I presented my credentials and was welcomed with true politeness, and was immediately shown the establishment, commencing with the reception room where we stood.

"This," said Mr. Ronysa, pointing to a large crayon, "is Lucca, and this my wife; here Ristori and here my wife; Fechter, my wife; Joe Jefferson, my wife;" and he strode from one picture to another, and waved his hand at each with a quickness—an air indescribable.

"Mr. Ronysa," I said, "I perceive you are married."

He looked at me a moment; his nose described one arc of a circle, his moustache another.

Opening the door we walked through dreary halls up to the skylight room. Here we found the genial Mr. Dickson, the operator, smoking a pipe, which he waved in salutation to me with such "an air of the salt sea wave" that the brine and the smoke came into my eyes at once.

Mr. Ronysa proceeded to show me his method of working; for his poses are "posers" to all opposers.

"Sir," said he, "you see I have my great rest—my great posing machine. If I want a full length, I turn this so, and that so, and I have it." With the agility of a circus rider he threw himself elbow on the chair, with one foot resting on the toes. "This is like you see my Nast picture. If I want," he continued, "to make a tall man short, I place him so with my rest." He doubled himself nearly in two by the machine. "If I want a short man tall, I stand him like this;" and he threw himself back with head

erect. All this was performed with a rapidity marvellous in any one but a great artist like Mr. Ronyssa. "This I am able to accomplish with my rest," Mr. Ronyssa explained. "I can make single figures or groups—sitting, standing, reclining, kneeling, jumping or dancing—with my rest. I can make babies with my rest. I can——"

"Say, Rony," I interrupted, familiarly, "can't you give us a rest?"

He stopped; a smile rippled under the leonine moustache, and he dashed from the room a la Harlequin, waving me a theatrical adieu. To Mr. Dickson, who had remained an undisturbed spectator, I bowed, and silently departed.

Up Broadway I rambled, with visions of my recent interview rushing through my bewildered brain. I could not think calmly, and some such thoughts as these I spoke aloud: "Is this the Art? Is this the future that awaits us? Must we jump into fame? Must we turn hand-springs to reach an everlasting niche? And yet it must be so, or why is it 'viva le Harlequin?' Now for the Pantaloon."

I soon gain another stairway, with but a few more pictures hanging about. I glance in at the reception room. I see the artistic visage of the gentlemanly Mr. Turkz, but it is not with him I would now confer. Up a stair or two more I go, and soon enter the skylight. Seated at a desk at one end is a gentleman clad in a knit jacket, a smoking-cap upon his head, with the tassel nestling in the ample recesses of his right ear. Clash your funnels, pop your collodion corks, and twang your baby amusers, fellow photographers—it is the only Sonander Bertel! He turned his head and recognized me with a patronizing air as I greeted him and inquired about the state of the business.

"This establishment," he answered, "is now doing an immense business. "Boy," calling to his well-trained assistant, "how many to-day?"

The jackal who attends this lion replied with curious and methodical alacrity:

"Eighty-four new sittings."

Bertel turned to me. Sad experience had taught me what was to come. I dropped into a chair.

"I came," Bertel commenced, "I came to this establishment two or three years ago. I saw Mr. Turkz; he saw me three dollars per week. I cleaned the glass; it was cleaned; Mr. Turkz saw it. I have been, sir, with Mr. Turkz. I have risen to what I now am. Two years in the business, sir, and one hundred days in a fog."

Bertel paused a moment, cast an eye of loving pleasure on some combined silver and ink spots on his hands, and resumed:

"What would Mr. Turkz be without me? What would I be without Mr. Turkz?"

"Bertel," said I, calmly, "there you have me. I give it up."

The lion glowered at me a moment and then went on:

"I have taught myself; I am no old operator; I have not been ten, twenty years in ruts. I said to Mr. Turkz, I can! He said, Try! I did, and here I am! I got into a fog; I wrote everybody else into a fog; I 'marshalled' them to everlasting fogginess. Hundreds now fill an early grave from riding the 'sphinx,' and yet I live!"

He stopped for want of breath. I rose to go, but no escape as yet. He laid his hand upon my shoulder and began again:

"I have written books, papers, receipts, almanacs—anything, everything, for the greater glory of the Art and myself. I have made a name; I have made pictures; I have made collodion. Boy, call Mr. Sifar."

The jackal disappeared into an adjoining room, and soon returned followed by a middle-aged gentleman, who had picked up a volume of "Twilight and Lark-room" so hastily he had it upside down.

"You have used my collodion, Mr. Sifar; your letter heads my list of testimonials. Other parties connected with this place have praised my collodion. You are the Sifar; what do you say of it?"

Mr. Sifar took a paper from his pocket, adjusted his spectacles, and read:

"I have used the Bertel collodion. I find

it everything I want—more than I ask for. I know Mr. Bertel; I find him all I want—more than I——”

With a gentle smile he meandered back to his apartments.

Bertel turned to me once more :

“Now, what is the secret of all this? How have I done it? How have I written and fogged, fogged and written Mr. Lurkz into being nearly as great as myself?”

“Conundrums, Bertel,” I said, trying ineffectually to edge away, “are out of my line, you know.”

“I will tell you,” Bertel replied. “I will give to you in one word the secret of my success.”

He leaned toward me. The cap tassel fell out of his ear on to my nose, and he whispered this little word :

“INK !”

I tottered down the stair. Can it be? I thought. Is the great photographic future still unwritten? and will it be after all naught but—INK?

(To be continued.)

Having a Photograph Taken.

HAVING a photograph taken is one of the great events in a man's life. The chief desire is to look the very best, and on the success of the picture hinges, in many cases, the most important epoch in life. To work up a proper appearance time enough is used, which, if devoted to catching fleas for their phosphorus, would cancel the entire national debt and establish a daily paper. When you have completed your toilet you go to the gallery and force yourself into a nonchalance of expression that is too absurd for anything. Then you take the chair, spread your legs gracefully, appropriate a calm and indifferent look, and commence to perspire. An attenuated man with a pale face, long hair, and a soiled nose now comes out of a cavern and adjusts the camera. Then he goes back of you, and tells you to sit back as far as you can in the chair, and that it has been a remarkably backward spring. After getting

you back till your spine interferes with the chair itself, he shoves your head into a pair of ice-tongs, and dashes at the camera again. Here, with a piece of discolored velvet over his head, he bombards you in this manner : “Your chin out a little, please.” The chin is protruded. “That's nicely; now a little more.” The chin advances again, and the pomade commences to melt and start for freedom. Then he comes back to you and slaps one of your hands on your leg in such a position as to give you the appearance of trying to lift it overhead. The other is turned under itself, and has become so sweaty that you begin to fear it will stick there permanently. A new stream of pomade finds its way out and starts downward. Then he shakes your head in the tongs till it settles right, and says it looks like rain, and puts your chin out again, and punches out your chest, and says he doesn't know what the poor are to do next winter unless there is a radical change in affairs; and then takes the top of your head in one hand and your chin the other, and gives your neck a wrench that would earn any other man a prominent position in a new hospital. Then he runs his hand through your hair and scratches your scalp, and steps back to the camera and the injured velvet for another look. By this time new sweat and pomade have started out. The whites of your eyes show unpleasantly, and your whole body feels as if it had been visited by an enormous cramp, and another and much bigger one was momentarily expected. Then he points at something for you to look at, and tells you to look cheerful and composed, and snatches away the velvet and pulls out his watch. When he gets tired, and you feel as if there was but very little left in this world to live for, he restores the velvet, says it is an unfavorable day for a picture, but he hopes for the best, and immediately disappears in his den. Then you get up and stretch yourself, slap on your hat, and immediately sneak home, feeling mean, humbled altogether, and too wretched for description. The first friend who sees the

picture says he can see enough resemblance to make certain that it is you, but you have tried to look too formal to be natural and graceful.—*Danbury News.*

THE ACID NITRATE BATH.

BY J. W. BLACK.*

I HAVE been requested by our President and Secretary to make a few remarks in regard to my nitrate of silver "acid bath." At each of our Conventions for the past three years I have had something to say to you in relation to the bath I have used and am still using, and I therefore feel it to be too old a story to be repeated. I am aware that the bath has been tried by a great many persons, both at home and abroad, with but very indifferent success, yet a few have found it to be all that I have ever claimed for it. Mr. Ingalls, from Montreal, has been in my closet, seen the practical working of this bath, and, I trust, he will be able to state to you the facts as they are.

You may, perhaps, feel interested to know the circumstances which first brought this bath into use. Several years ago, when the celebrated Bromide Patent Case was on trial, and when evidence was being taken in Boston by the attorneys for the defence, it was thought desirable to ascertain if we could not do as well without the use of the bromides as with them. To test this question I prepared a quantity of collodion, and substituted chlorides for the bromides, using the ordinary silver bath of the strength of about forty grains to the ounce. After several trials, pictures were made of Mr. Howson, the attorney having charge of the case, and also of Mr. Wilson, our worthy Secretary. The pictures, for those days, were esteemed quite good, and could not be distinguished from those made by the ordinary mode of working. These experiments were so successful that I felt encouraged to proceed further with them, and soon found that the strength of the silver bath and the amount of acid used changed

the results in a very remarkable degree. I found that a silver bath of about eighteen or twenty grains, when made very acid with nitric acid, gave much better results than stronger or neutral baths; in fact, that almost any result could be produced by adding more or less acid. For example, if I wished to prepare a bath to copy lines, as for an engraving, where intensity only was required, I used only a small quantity of nitric acid; but if I desired to make negatives from life, or objects from which I desired to secure delicate shadows, I added a larger quantity of the acid, which had the practical effect of shortening the time of exposure, and of softening the shadows in a most satisfactory manner. An excess of acid, however, made the negatives flat, feeble, and difficult to intensify by the ordinary treatment.

There is not, probably, a person present who has not in his experience found himself making some of his best pictures after he had used his bath for a long time, and when, of course, it had become very much weakened, and full of iodide of silver. In my own experience, many years since, when I often used a bath up to sixty grains, my very best effects were produced when I supposed the bath exhausted and unfit for further use.

In the early days of collodion negatives we considered it indispensable to have our silver bath of at least sixty grains to the ounce; but to-day no one thinks of having a bath much stronger than thirty grains to the ounce.

In printing, the old formulæ required something like eighty grains of nitrate of silver to the ounce, while at present thirty grains are considered ample.

In both the negative and printing-bath, the general tendency, of late, has been to use much less silver than formerly. Take for instance, the bromide of silver emulsion process, and you will observe what a very small quantity of silver is required to produce a good strong negative, and generally without the employment of any free-silver in developing. Of the silver we use in our negative baths but an exceedingly small percentage

* Read before the N. P. A. Convention at Buffalo.

really goes to make the negative picture. The effects produced by a weak or strong bath are, undoubtedly, more of a mechanical than chemical nature. And, by the way, I wish to say that this is a matter which I think has been too much overlooked by a vast majority of our fraternity. I believe that the extreme sensitiveness of a plate depends much more upon the structure of the film than on the precise proportion of the chemicals used, or the particular kind of sensitive salts employed.

As the result of many careful experiments, I have found but little, if any, difference in the various iodides and bromides used, other things being equal. Several years ago I prepared a gallon of collodion, and divided it equally in thirty bottles. I sensitized it by beginning with all iodide in the first bottle, and adding bromide, and reducing the iodide, until the thirtieth bottle contained all bromide. The result was truly wonderful, showing a very wide margin where no difference in sensitiveness could be detected. These samples of collodion were carefully tested in an even light on the same subject. Subsequently, the whole lot were thrown together and thoroughly mixed, and the whole worked well.

You will find in practice that a soft, spongy collodion will always be highly sensitive, for the reason that its mechanical constitution is such that the molecules of silver move more freely within and throughout it—that is to say, with less friction—and re-arrange themselves, by the action of the light, more readily than they do when enveloped in a tough or hard collodion. No doubt, a part of the success of the "Acid bath" is due to these facts, for the great quantity of acid tends to make the collodion film peculiarly tender, velvety, and soft, and thus affords the most delicate gradations of light and shade. I will give you the formulæ for collodion and bath, such as I am now working, and will only say that, like all other formulæ, they must be used with judgment. Chemicals, particularly soluble cottons, are not always uniform, and the formulæ must be modified, to suit

varying conditions. For general work I use collodion made as follows:—

Alcohol.....	9 ounces.
Ether.....	6 "
Soluble cotton.....	108 grains.
Iodide of ammonium.....	18 "
Iodide of cadmium.....	18 "
Chloride of calcium.....	9 "

The nitrate of silver bath I make of nitrate of silver, twenty grains to the ounce of water, and for every two quarts of the solution add half an ounce of C. P. nitric acid.

The amount of acid used must depend upon circumstances; you will probably require more acid. I often use as much as two ounces or more, with success, in two quarts of solution.

To develop, I use from fifteen to twenty grains of protosulphate of iron to the ounce of water, with enough acetic acid to cause it to flow smoothly.

All practical photographers know how utterly impossible it is to give an exact formula that will work to the satisfaction of an expert operator. The foregoing statements, therefore, are given only as a basis to be managed and modified according to circumstances. And allow me to say that this is no secret process, but only a matter of skill to make it uniformly a success.

I do not recommend the "acid bath" because it is cheaper, and requires less silver, for that which gives us the best results is, in the end, the cheapest and best. What we are all aiming to do is to reproduce on paper or other material exactly what we see by the eye in light and shade. In the first place, we should reflect that it requires many years of constant application and study to learn to see lights and shadows as they actually exist, and to know how materially forms are altered by them. To utilize such knowledge after it is acquired, so that, at least, we can avoid making bad worse, involves long practice and close observation.

I do not imagine, and I am sure you do not, that any bath, whether acid, alkaline, or neutral, or any collodion whether soft or hard,

will enable everybody to produce just such a portrait or other picture as may be desired; for such a result must be attained by the knowledge and experience of the operator, whatever the character of the chemicals or other instruments may be through which his work is accomplished. But what I wish to fix upon your attention is the fact that with my "acid bath," very weak in silver, and more or less strong in acid, I can, and do, not only take pictures quicker, but get also a softer and more delicate tint, more detail in the lighter portions, more strength in the darker shadows—in short, nearer to nature, than what we usually consider a good photograph made in the ordinary way. This process rests entirely upon its own merits. I do not ask any one to pay anything for it. I can only reiterate that in my practice for the past three years it has proved uniformly successful, and if it is of any value to you, you are all perfectly welcome to use it.

Distortion of Photographs by Expansion and Contraction.

BY W. BATHO.

HAVING to produce some prints which were to be exactly the size of the negative, I found a difficulty in my way that hitherto I had not noticed.

When the prints were finished there was considerable variation between them and the negative, yet when we look how printing operations are conducted it is a circumstance we might expect.

The importance of taking this into consideration is obvious; for, in making an enlargement from an ordinary *carte*, for painting or any purpose whatever, we cannot obtain a truthful representation of the original, there being in the *carte* an amount of distortion which, in the absence of the original negative, we have no means of knowing.

The following experiments were performed to ascertain how to obtain the maximum and minimum of distortion. The paper used was medium Rive; the negative was made by covering a plate with a non-actinic varnish,

and ruling fine lines through it at carefully measured distances. An oblong figure was thus produced, measuring on two sides three inches and five-tenths, and on the other two sides two inches and three-tenths. Three prints were made, which I will designate Nos. 1, 2, and 3.

No. 1 went through the ordinary operations of toning, fixing &c., and on measurement was found to have contracted—a circumstance easily accounted for by the fixing and washing removing the argentic chloride from its pores previously expanded by it.

No. 2 went through the same operations, the difference between it and No. 1, being, that it was mounted while still wet, on a dry mount.

No. 3 differed from No. 2 by being mounted on a mount that had been previously saturated with water, the object of this being to place the print and mount in the same condition for contraction when drying. The results I tabulate below:

	Longest side in tenths of an inch.	Shortest side in tenths of an inch.
Negative.....	35·000	23·000
Print No. 1....	34·875	22·950
" No. 2....	35·700	23·123
" No. 3....	35·075	23·024

It will be seen that No. 3 is nearest the truth; and this appears to point out that, to obtain the nearest approximation to the original, we must have our mounts and prints in the same conditions as regards expansion and contraction at the time of mounting. As to the practicability of this photographers must decide for themselves.

Note on Moonlight Effects.

BY LUDOVICO DE COURTEN.*

It is well known that these effects are obtained by a short exposure in sunlight. There are, however, several precautions to be observed, in order to give such views every illusion of which they are susceptible. M. Altobelli, of Rome, was, I believe, the

* *Montieur de la Photographie.*

first to produce such effects, if he was not altogether the inventor of them.*

This artist chooses for such production those hours of the day when the sun is inclining towards the horizon, so as to obtain long shadows in his pictures. Moreover, he always secures his view with the sun opposite to him, and with a very brief exposure, in order to have a dark tone throughout the picture. This position of the sun allows one to see in the shade all objects parallel to the ground glass, and separates the different planes by means of an atmospheric perspective of a most surprising character.

The shadows are thrown towards the spectator, which is very natural indeed, because on a moonlight night one likes to look towards the queen of night, and not from it, for its rays are not to be feared, like those of the sun.

The disc of the sun always traces upon the negative a solarized halo, and upon this should be gummed a round piece of thin paper, which must not, however, produce a perfectly white circle upon the picture. The diameter of this disc of light should be carefully studied, for it will not do to have it out of proportion. It is in little artifices like these that one recognizes the artist, for an unpractised and unskilful operator would at once spoil the production.

The well known moonlight picture of the Roman Forum, depicted on a large scale, is a complete illusion of this kind, and was produced by M. Altobelli in the manner above described.

WIPE your dark slide dry after each plate. The accumulation of nitrate of silver at the bottom corners of the dark slides stains the plate, rots the wood, and denotes the careless operator.

AIM at good pictures rather than quick ones.

* So far as we remember, Mr. Breese was the first to produce moonlight effects by means of low sunlight. Mr. Breese printed into the place of the solarized sun an actual image of the moon, which produces an effect far superior to that described in the above article.—*Ed. Photo. News.*

BACKGROUNDS.

BY GEORGE CROUGHTON.*

THE subject of this paper would be more accurately stated if it were called the *Back-grounds of Photographic Portraiture*.

I am aware that it is not a new subject, nor can I hope to say anything new about it, but somebody has said somewhere that what is new is not true, and what is true is not new; so if I do not offer anything novel, it at any rate has the merit of truth.

Although there has been much said and written on the subject, it is one that has been very much neglected—in fact, I do not go too far when I say the most neglected of all the accessories of photographic portraiture—simply because photographers generally are not awake to its importance. They think when they have sent a post-office order to any one of the dealers who supply such things that is all they need do; and when, in return, they get the usual flat background, and find it without a mark, and nice and flat all over, they congratulate themselves upon having a good background. They do not understand when they hear and see written that the background should be used to assist in concentration and focus. That I am not exaggerating this ignorance on the part of photographers was proved by the many mistakes that were made about Mr. Faulkner's background at the last exhibition, and many were the condemnations from certain photographers of what they called 'dirty backgrounds.' They could not see that the graduated background was managed to give all the value to the head, and make it what it should be—the centre of interest; they could only see that the background was not all flat and clean, as they were used to see it.

I have brought some enlargements, upon which I shall work with chalk, and shall try to explain the simple rules that govern the lighting of the background.

The first is what is usually called a "vignette" by nine out of ten photographers; it is

* A communication to the South London Photographic Society.

simply an oval, not sharp at the edges, with the same amount of shade on both sides, with no attempt at all to vary the light and shade. Very few photographic vignettes have the background lighted to gain the most relief for the head, most photographers contenting themselves with putting their sitters against the background in ordinary use, and not one in a hundred having a background especially for it.

The disposition of light and shade upon the background of a vignette is of as much importance as upon a full-length or three quarter length—the same principles governing each, the same idea having to be carried out by the concentration of the light and points of sharpness upon the face. This is done by opposing light to shadow. The idea I shall attempt to illustrate upon this picture is this: The head, you see, is lighted from one side from an angle of forty-five degrees, and, supposing this light is from one window high up, the light that reaches the head does not reach the background on the same side, so opposing the lightest side of the head to the shaded side of the background, but, passing obliquely behind the head, falls upon that part of the background which is behind the shaded side of it. Left as it is you see it is wanting in balance—it is all light on one side, and all shade on the other; but the cast shadow of the head falling upon the background just above the shoulders gives the balance wanted, and so confines all the light and crispness to the head, the outlines of the coat being lost or softened into the background. You will notice that wherever the edge of a shadow cuts against a light there the eyes will fall first, and if the lower part of the background be light, and it is cut by the outline of dark drapery, the eyes will be attracted from the face to those parts; hence the necessity for having the background darker at the lower part, that the outline of the drapery should be softened into it, and the oddness avoided.

On showing this principle to a photographer, a friend of mine, he said—"Yes, it is all very well for you—you can do it on a pic-

ture right enough; but how is it to be photographed with the sitter?" I answered this question by making him a background especially for vignettes; and, as it answered well for him, it may perhaps be useful to others. On an ordinary wedged stretching-frame, four feet square, I tacked some unbleached calico, and then went to a tobacco-pipe maker and got half a ball of pipe-clay ready tempered for use. I divided this into three equal parts, and making it somewhat wetter than when I bought it, I worked into one of the portions as much vegetable black as it would hold, working the black into it with my hand. With the second portion of the clay I mixed about one-half of the black I had put into the first, and with the third just enough to make it a light grey. This, when dry, is easily worked upon the calico without preparation, and as easily softened or graduated into each other with the palm of the hand. With these materials I made the background upon the principle I have explained. It answered capitally, and saved an immense deal of trouble in vignetting. The background can be fixed by a weak shellac varnish applied with a sponge at the back, while the background is lying face downwards; this soaks through and fixes the pipe-clay and black so that they cannot be rubbed off. This would answer for large backgrounds as well as for small ones, and designs are easily worked in with this material. It has this advantage—that it is impossible to make a hard, sharp line with it.

I think it a very easy way to get up backgrounds for double printing if the photographer would draw upon an impress sheet of rough drawing-paper with this material, and then take a negative; for it would be considerably reduced, and none of the working would show. By these means a photographer can in a very little time make his background to suit his sitters.

I will show you a simple form of background to suit the kind of work referred to. I am decidedly of opinion that the more simple the background the better, so that it answers the great purpose of concentration.

The light can either be made to reach the background or the upper part of the side the light comes from, or the whole background upon the lightest side of the figure can be kept in shadow; there are examples of both kinds of lighting. The main thing to consider is to keep all your lights well together. Other secondary lights must be distributed about the picture, of course, to obtain breadth; but the principal lights must be kept near and upon the centre of interest—the head.

EXCESSIVE RETOUCHING.

WHETHER retouching be legitimate or otherwise is a question upon which a variety of opinions exist; but as to the legitimacy of the excessive retouching that now is the fashion there can be but one opinion, and that an adverse one. The pencil bids fair to become in the hands of the Photographer what the "sweetener" is in the hands of the unskilful artist—a ready means of destroying all anatomical resemblance to the human face, and in its place leaving a map with all gone but those prominences which, if removed, would render it entirely unnecessary to use sensitive paper to reproduce that part of the negative; for many of our retouchers appear to have undergone a course of study to enable them to imitate that absence of texture which I suppose is so highly appreciated by the Chinese.

Before me I have the portrait of a friend who has a forehead in which the muscles are well developed and form a marked characteristic in his features, yet in the portrait they have been "improved" out, and he has a face, generally, as vacant as a wax doll. I have heard of a lady who had a "celestial" nose—that is one looking to better things above—who in her photograph had a Grecian one. Perhaps the most ludicrous instance that ever came under my observation was a couple of specimens in the show-case of a photographer. The subject was a gentleman who apparently was pitted with small pox. On one side was a print from the untouched negative, and on the other one

from the negative after touching. The latter was as smooth as though an artist in wax had been employed for a considerable time on the gentleman's face, and, after that, as though the photographer, not satisfied with the result, had employed his ability in removing all traces of muscles about the mouth and eyes. The specimens were labelled respectively, "Before Retouching" and "After Retouching," reminding one strongly of the woodcuts on the bills of advertising dentists. "Without Teeth" and "With Teeth."

I am sure the fraternity only need these things to be pointed out in order to eschew them. I would not have any to suppose it is my opinion that all retouchers are of the above pattern; many undoubtedly employ the pencil as it should be employed, viz: as an aid only.

It may be argued that the public demand these "highly-finished" productions. Possibly this is true; but to pander to this taste is a shortsighted policy. The cause of the demand is not difficult to find. It owes its origin to two sources—first, the confidence placed in photography by the public as being truthful; and, second, the susceptibility to flatter that more or less exists in us all. If a person can obtain that which is generally believed to be truthful and which "flatters" his personal appearance he will have it, only that "flattery" must tend to destroy confidence in the truthfulness of photography, and, when this is once done, our art will have lost that which is, perhaps, one cause of its prosperity without having gained anything in return.

If the pencil be used simply to supply the shortcomings of photography—to perfect the imperfect rendering of flesh tones—all will be well; but, where it steps in and alters form, it is obviously using an imperfect means to an end when a perfect one is in our hands.

W. E. BATHO.—*British Journal*.

NEVER open a bottle of collodion, ether alcohol, or varnish near a flame, as an explosion may take place.

WASHING PRINTS.

A CORRESPONDENT, writing to us a few days ago on the subject of washing prints, says:

"I must make a statement to begin with that will seem strange, viz., that prints which have been washed the longest fade the soonest. Of course this assertion is only made with the application to ordinary conditions."

This remark of a gentleman who has had a very large experience in printing is well worth careful consideration, and will, when rightly viewed, be borne out by the observations of most photographers. The view taken by our correspondent is that the prolonged soaking of albumenized silver prints in water tends to facilitate decomposition of the size of the paper—or, as we may suggest as still more likely, of the albumen—and that the decomposition, when once set up, continues, and ultimately destroys the print, even though all traces of hyposulphite (thio-sulphate) of soda or of silver have been washed out. In fact, it has been shown that prints washed rapidly, and under such circumstances that all traces of hypo. could scarcely be removed, have kept better, and from the first looked better, than similar prints washed very fully by prolonged soaking in water.

In our own experience we can cite a case which supports, in some degree, the statement above made. We printed several proofs from a negative showing some very delicate details in the anatomy of the throat of a whale. It was necessary to print lightly, as the negative was feeble; but at first we produced prints which were too much lowered on toning and fixing, and these prints were washed well and left aside in a large quantity of good, clean water. Through some accident they remained in the water for a fortnight or so, at the end of which time scarcely a trace of a picture remained. In this case the hyposulphite had been removed, and the destruction of the prints might, therefore, fairly be attributed to the cause suggested by our correspondent. Here, then, is a case in point; and we are disposed to think that fading is sometimes due to the cause referred to,

though we should be slow to argue from the particular to the general, and assert that it is the chief source of the nuisance we so frequently meet with in silver prints on albumenized paper.

The result of our correspondent's experience has been to lead him to throw overboard all mechanical methods of washing, and take to a system of hand-washing, which he finds to be most easily and expeditiously conducted in the following way:—

After removal of the prints from the hyposulphite they are roughly washed first, in order to remove the large amount of the fixing bath which necessarily clings to them; they are then placed in a sufficiently large and convenient dish, with the face of each print downwards. While so arranging the prints it is well to keep all of them in constant motion, so as to facilitate the circulation of the water between them. When the prints are all one way up pour off the water and drain, then add a little water and pour off again so as to remove the previous water as much as possible, and next fill the dish. Now stir the prints well about in the fresh water and turn every print. Pour off the water and drain again. This process is continued, taking care to turn the prints each time, and so secure their separation and special surface washing. He finds that a batch of prints from eight sheets of paper of the usual class produced in an ordinary business can be washed well, as he believes, in an hour or an hour and a-half.

There can be no doubt that, when this plan is conscientiously carried out, ample time is allowed for soakage, and full facilities afforded for removal by the water of the whole of the hyposulphite capable of passing into solution, while but little opportunity is given for the progress of decomposition of the albumen or disintegration of the paper. It would, of course, be well to have some positive evidence of the removal of the hyposulphite; but this can, however, be very easily obtained.

The main point referred to has not hitherto received as general attention as its impor-

tance probably deserves; we should, however, like much to have the advantage of the experience of other large printers upon the matter, since, though a great deal has been written upon the subject we certainly cannot yet say that the fading difficulty has been in any true sense cleared up.—*British Journal*.

HERR FRITZ LUCKHARDT.

THOSE of our readers who have examined the charming pictures of Fritz Luckhardt in the late exhibition, or those who have seen his published cards and cabinets in shop windows, will be interested in a sketch of the artist, his training and practice, which appears in a recent number of *Anthony's Bulletin*. The writer says:—"Herr Luckhardt stands first in this city, as well as in reputation abroad. I have enjoyed repeated visits with him, (he is an excellent linguist,) and tried to catch the charm which has created and retains for him his great popularity. I even ventured to address inquiries as to what had led to and sustained it. 'What,' I asked 'is the secret, the subtle something?' 'My feelings only,' he replied. Mr. Luckhardt does not admit any secret. On the contrary, he says he has no special formulae, and will not permit himself to be wedded to them; it would be defeating, because not a broad course.

"As a younger man, Mr. Luckhardt placed himself in the best German national schools of art. When he became a painter he still continued taste training, and simultaneously took up the study of chemistry, to perfect which he went to Paris, and worked in a laboratory twelve months for sixty centimes per day, after which he engaged himself for a time in the commercial house of your esteemed friend, Herr Oscar Kramer, to acquire habits of business. He left him about six years ago, to take his present studio, and, as you well know, attained international renown almost immediately. He says: 'I cannot permit a sitter many ideas;' and he will not tolerate caprice. 'It is myself who must decide what kind of picture to make of each,

and I must be suited.' Mr. Luckhardt's seeing is an artist's, his conceptions are an artist's, his fancies, comprehensions, idealizations, are an artist's. The sitter is completely made to incorporate through simplicity and strong character, all grace and best expression, giving art such power in the situation as to seem almost to leave the camera, however excellent, to perform only a very subordinated remainder. Just here, whilst I was in the place, a lady who had had a sitting for a second negative, which she was desirous of accepting, got angry because he would not consent. Mr. Luckhardt never advertises, never puts a sign nor his name; there are no specimens at his entrance, and no specimens hung about his reception room, nor an album of examples upon its centre table; nothing from which the sitter can say, 'I want like this.' Mr. Luckhardt was the first to make costumes and backgrounds to match. Many of these character subjects he showed me were beautifully in harmony. I looked through a collection to which he invited my attention, and amongst them all (a hundred or more, of which I send one for inspection of your readers,) I found no two alike in accessories. He has upwards of two hundred backgrounds, and furniture to go against them; and, besides, constantly adding new. He has his own painter to rub off, re-paint, and supplement. Mr. Luckhardt has a *haut nouveaute*, of which he makes a specialty, viz: White dresses, which he confines strictly to drawing-room style and to private people. The rich specimens he showed me are truly beautiful effects—generally a profile face, and the dress, a prettily adjusted train, with elegant *salon* accessories. His eminent success in these is through an invention quite his own, viz: the use of a delicate aniline collodion, put all over the back of the negative, which he then with a stick, flat and sharpened, removes, excepting only the the flesh, to retard quick printing of those parts during the sufficient time required in printing the white dress up to the richness required. The aniline collodion upon the negatives he showed me was of a pink or

very delicate red color. Though Mr. L. is omnipresent in his realm, his treating the sitter in the studio cannot be delegated. It is vital. Those leaving him and advertising 'la'e with Luckhardt,' and low prices have not worked perceptible interference. He showed me also the details of the dark room, where he is careful to the last degree to ensure absolute cleanliness, glass being chiefly used, as being easily made pure, being non-absorbing, &c. His system in storing negatives is very thorough. They are kept in large closets between shelves (grooved top and bottom,) for four months, then passed to storage for negatives less likely to be wanted; there they are kept four years and then rubbed off.

"The number of persons now employed is thirty to forty; but he has the intention to reduce his business, and raise his prices, which at present are as follows:—One doz. cartes, plain, 8 guldens; one doz. cabinets, plain, 18 guldens; one piece, 8 by 10, plain, 15 guldens; other styles and finish, movable prices.

"He says he never takes likenesses of children nor little dogs. Mr. L. was created Hon. Sec. of the Vienna Photographic Society, and, though he never writes, is one of the liveliest and most instructive speakers at the Society's meetings."

Atmospheric Refraction and the last Rays of the Setting Sun

CONCERNING the length of time during which the phenomenon of the colored ray is visible with telescopic aid, I have found that when the atmosphere is sufficiently favorable to admit of the employment of sixty diameters with a three-inch object-glass, the green effect becomes apparent on that part of the sun's limb in contact with the horizon, even when one-half the sun is still unset, and, of course, from then till final disappearance.

After what has already been said it is almost needless to offer evidence of the objective or real nature of the phenomenon. Suffice it, then to say that, if we gaze steadily

upon the setting sun, and then suddenly turn our eyes to another part of the sky, or close them altogether, we shall *not* see any effect like that of the final colored ray, and may hence infer that that ray is not a complementary image left upon the retina upon the sudden removal of a brilliant object from the field of view.

That the waters of the ocean have nothing to do with the production of the color is made manifest by its visibility when the sun "sets" behind the edge of a well-defined cloud. On the 14th and 15th of June, for instance, it was seen at upper contact of the solar limb with clouds. On the earlier date in question a thin band of cloud stretched across the setting sun, and under a power of fifteen diameters the green effect was seen at upper contact with the cloud, and again at final disappearance below the horizon. And several other occasions the writer has observed the effect when the disappearance of the sun has taken place at an elevation of six or eight degrees behind a heavy bank of clouds.

I have already remarked that the different colors seen together, with the order of their appearance, are suggestive of the prismatic action of the atmosphere as the cause of their production; and I may now add that the interception of the horizon or the clouds suggests itself as the cause of their separation.

Assuming the correctness of this view, it becomes evident that an artificial horizon would prove equally efficacious in separating the colored bands; and also, that if employed during an inspection of the sun's lower limb the least refrangible end of the spectrum would be disclosed, and this I have found to be the case. If a semicircular and blackened metallic diaphragm be introduced into the eyepiece of our telescope in such a manner as to divide the field of view exactly into halves from one of which it excludes the light, we shall be enabled thereby to make the observation of the colors at almost any time during the day. I may remark, however, that as the refractive power of the atmosphere diminishes from half a degree on

the horizon to zero at the zenith, the effect is most satisfactorily seen when the sun is not too high. In order to make the observation with the artificial horizon, let the sun's image be projected on to a sheet of white cardboard in a darkened room. By allowing the sun's limb to descend into the field of view behind the straight edge of the diaphragm the first rays will be observed to be intensely red, and these, after a very transient duration, I have observed to give place in turn to orange, yellow, and green, which latter color was then lost in the ordinary refulgence of the sun.

I have attempted to see the prismatic fringes of the sun by direct observation through a slit of about the one hundred and fifteenth of an inch in width, placed as before at the focus of the telescope. The blinding glare of that portion of the sun necessarily seen through the slit in endeavoring to find the limb rendered the observation futile. The upper limb of the sun, as observed in the darkened room by the method above alluded to, gave green, blue, and, finally, purple, which latter color the reader will remember is the one which "Cymidine" said *should* be the last. The color, however, is one which I have thus far never seen upon the natural horizon, probably owing to the comparative faintness of its luminosity.

Regarding the scale upon which the sun's image should be projected, that obviously depends on circumstances. With a three-inch object-glass I have found the green effect analogous to the effect of the setting sun very plainly visible when the solar disc has been represented on the screen with a diameter of three feet, but perhaps at its best with a diameter of two. The purple, however, has, in my experience, been best seen when the diameter has been but as many inches. As the variation in size is easily effected, other observers of these effects must settle for themselves the size which suits them best.

I am aware that the use of refracting instruments for the observance of a phenomenon of natural refraction is scarcely everything which could be desired; but when the images observed are seen without any change of

focus in the very centre of the field, i. e., in the middle of the artificial horizon, and therefore alike subjected to the minimum of instrumental peculiarities, I apprehend that the changes of color can only be attributed with fairness to an external cause.

I may observe that the colors seen under the most favorable of conditions were quite clear and unmistakable, and each one of them easily detained at will or the whole phenomenon recalled by the adjusting screws of the instrument.

In face of the evidences now advanced I apprehend the conclusion to be substantiated that the green ray visible to the naked eye at the moment of the sun's disappearance below the horizon does in reality result from the prismatic action of our atmosphere.

D. WINSTANLEY.

LEST there should remain in the minds of certain students of organic chemistry a lingering doubt as to the propriety of effecting a radical change in the present system of nomenclature, we present the following definition of an organic acid, as given in Wöhler's Chemistry, latest edition: "ANTHRAQUINONEDISULPHURIC ACID. *Dichlor-* and *dibromanthracene* dissolve readily in forming sulphuric acid with the aid of gentle heat, forming *dichlor-* or *dibromanthracene disulphuric acids*, which, when treated with oxidizing agents, and also when treated with concentrated sulphuric acid, are easily converted into *anthraquinonedisulphuric acid*." *Query*: If monobromanthraquinone is obtained by the oxidation of tribromanthracene, what would result from the union of bihydrochlorate of dibromoterchloronaphthaline with dilute dichlor- or dibromanthracene disulphuric acid?

It is estimated that not less than half a million dollars' worth of gold and silver is annually consumed by photography alone.

A CALIFORNIA lady has secured a patent for a "medicated towel." Every photo has one, chemically charged, in his dark room.

FOREIGN NOTES.



RESTORATION OF OIL PAINTINGS.—Radlkofer has proved that the deteriorations of paintings is not due, as was suspected, to organic formations. It is evident that colors even the most stable cannot preserve their original shade and brightness except on the condition that the drying oil which has penetrated them, and in which they are in a manner suspended, retains its optical properties. The molecular changes produced by the lapse of time it is proposed to reverse by the following process: The picture having been secured to the lid of a box of suitable size, alcohol of 80 per cent. is poured on the bottom of the box and layer of flannel. The box is then closed, and the restoration of the picture is accomplished by the action of the vapors of alcohol to which it is exposed.—*Chemical News.*

RE-DISCOVERY OF OLD DISCOVERIES.—Our foreign brethren appear to be chiefly agitating in their journals who discovered the old and well known improvements. Why not turn their discerning minds to new matter?

M. MARION states that paper prepared with ferrocyanide of potassium is affected by light, and when light is transmitted through a design or picture, a copy will be obtained

which needs only to be washed to be preserved.

INCREASED SOFTNESS.—A sheet of blue glass placed directly in front of the exposed plate in the camera, or a disc of blue glass in contact with the front lens, is said to give great softness, without longer exposure than ordinary.

STOCK ALBUMEN which may be kept indefinitely may be thus prepared: To every 8 ozs. of albumen add 20 drops glacial acetic acid; stir well; let stand one hour and add one half drachm ammonia. Keep tightly corked.

ALBUMEN BLISTERS.—A strong solution of alum used after toning and before fixing is said to effectually prevent blisters. Immerse the prints for a few minutes.

ACID STAINS from clothes are removed by ammonia. Should the original color of the fabric not return, apply chloroform, when it will be instantly restored.

COL. STUART WORTLEY's alkaline developer is creating a decided stir among the dry-plate workers.

SILVER STAINS may be removed from the hands by first using tinct. iodine and then conc. ammonia.

Miscellaneous Notes.

THE value of the sensitive photographic plate in determining the depth to which solar rays penetrate the sea has already been demonstrated by Professor Agassiz and others. Mr. Seimons has, by the aid of more delicate apparatus and the use of the electric current, succeeded in the construction of a deep-sea photometer that serves the double purpose of a *light-measurer* and a sounding-line. This ingenious contrivance consists of a roll of sensitive paper, hermetically closed in a glass tube, placed in a recess in a thick disc attached to an iron frame, and kept in place by a spring. Attached to the frame is a magnet, which draws the tube out from its recess when a current is passed down through the supporting wire rope, and on the current being broken, the tube containing the sensitive paper is drawn back into darkness again. By this arrangement the actinic force of the light may be estimated by the degrees to which the sensitive paper is darkened at different depths.

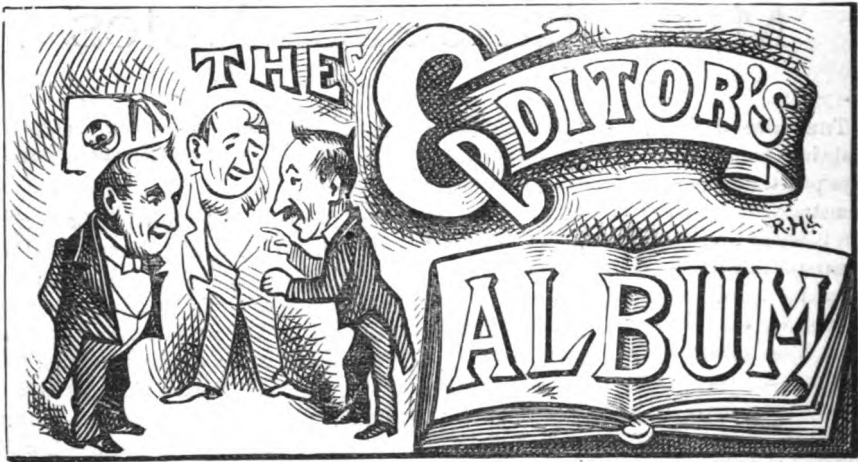
THE *Boston Journal of Chemistry* gives the following receipt for that beautiful and instructive parlor experiment known as imitation frost-crystals: "Dissolve four hundred and fifty-six grains of nitrate of lead in six fluid ounces of water. If the solution is turbid, filter through paper. Place the solution contained in a glass vessel on the table where it is intended to remain, and drop into it two hundred grains of sal-ammoniac—chloride of ammonium—in long, fibrous crystals. Soon small crystals of chloride of lead will form and ascend through the denser liquid, presenting the appearance of an *ascending* snow-storm. When the lead is all precipitated the crystals will begin to *descend* as a genuine miniature snow-storm, forming grotesque masses resembling a winter's land-

scape. If the vessel containing the crystals is not disturbed, it often preserves its beauty for weeks."

THE *American Naturalist* for June gives the following synopsis of L. Erkman's method for obtaining a microscopic photograph of vegetable tissues: "The section of the plant or other tissue is allowed to stand over one night in a moderately strong solution of aniline red. On being removed and carefully washed with water, the nitrogenous tissues will be found to have been uncolored, while the non-nitrogenous portions retain their color, there being also a considerable amount of shading. If the section be now laid upon glass, so as to represent a negative, a positive may be obtained, in which the nitrogenous substances are dark, and the non-nitrogenous light. Having prepared the negative as here described, the securing of the positive may be intrusted to any intelligent photographer."

THE harrowing effects of a serenade were well illustrated the other night in Trumbull county, Ohio, where a newly-made bride threw sulphuric acid upon the members of a serenading party, blinding one, destroying an eye for another, and badly disfiguring the faces of several others. She was arrested and bound over for trial; so we shall probably know soon whether the provocation of a serenade justifies desperate remedies.

A SINGULAR explanation is given of an apparent case of spontaneous combustion in New Hampshire. The fire which was discovered in an unoccupied room was traced to a stereoscope, the lens of which concentrated the sun's rays upon the table on which the glass lay. Photos should take warning in regard to solar cameras, lens, &c.



THE NEW WAY TO EXHIBIT PHOTOGRAPHS.—We are further indebted to Mr. C. D. Mosher for an excellent idea for those who place on view at our numerous exhibitions, fairs, &c., samples of their work. It consists of a neat catalogue of all Mr. Mosher's productions shown at the recent Industrial Exposition at Chicago. The advantages of this idea will be seen at a glance. How much more interesting for the visitor to be able to tell who the pictures they admire represent—and it is a splendid advertisement. Mr. Mosher annexes to each number and name on the catalogue a neat epigrammatic sentence as a description, and ends with his signature, "Waiting for the verdict" of the public. He sends us also a neat little advertising pamphlet, from which we extract the following good

SUGGESTIONS TO SITTERS.

1. When you are ready to be photographed, select some first class photographer in whom you have confidence, appoint an hour with him several days in advance, be punctual at the hour appointed, and make it your first business on that day. If not convenient to appoint an hour, then come before you are worn out with shopping or other business.

2. Dress in good taste, and don't add too much, so that when you get your pictures your friends will not know you.

3. Let the photographer decide which is the best position for you. He is supposed to understand his business and to know what is best for each sitter; but he is ever ready to hear any suggestion.

4. Don't blame the photographer for bad expression after he has done all in his power to make you a good picture. Know that if the expression is not just what you think it ought to be it is not his fault, as he cannot control your actions entirely.

5. In sitting for a picture don't try to look pleasant by assuming an expression, but be calm and natural, and the result, as a general thing, will be good.

6. Try to be pleased with your pictures if they are really good. We do not desire to turn out bad work.

7. Bring your babies in the morning.

8. Light drapery for ladies is better for the "Rembrandt" or shadow picture, especially if it is elaborately trimmed.

9. For cards, sitting pictures, bust or vignettes are preferable to standing ones, as more graceful positions can be secured.

(Ladies in full dress, elaborately trimmed, full length, standing or sitting, with my beautiful accessories, are very charming, unique and fashionable.)

10. You cannot tell how your pictures will look from the negative, so you can save our time by not asking to see it.

11. Please give us ample time to finish your pictures, so that we can do so carefully and well.

12. We guarantee first class work in every case.

13. First class work made in cloudy weather as well as in clear.

We are in receipt of some very superior stereo views from the well known out-door worker, Mr. W. M. Chase, of Baltimore. They illustrate the gorgeous scenery of "our American Rhine," the Hudson River. Especially interesting are the pictures of "Woolfert's Roost" and surroundings, made immortally famous by the pen of its old resident, Washington Irving. In gazing at these views it is easy to people them with the jolly spirits which wandered in the "Kaaterskills." West Point, too, with its visions of gay cadets and presidential visits, as well as its admirable scenery, is beautifully pictured. The finest view we have yet seen of "High Bridge," on the Harlem, the aqueduct bridge over which the water to supply New York city is carried. Old Fort Lee, once historically famous and now devoted to gay picnic parties and the like, and the "Palisades," those wonders of Nature's masonry. In the "Irving" series we especially notice the "Old Dutch Church," 1699; "Sleepy Hollow," and the "Haunted Mill, Sleepy Hollow." In the "Hudson River Scenery" series, some good track views in the vicinity of Iona Island. "Washington's Headquarters" at Newburg, and splendid West Point views in variety—"Generals Scott and Sedgwick's Monuments;" "West Point from across the river;" the "Ruins of Fort Putnam;" "A Gatling Gun;" "The Parade Ground," and the "Blockade Chain of 1778"—all excellent photographs and well chosen subjects.

At the Fair of the Maryland Institute re-

cently held in Baltimore the display of photography was unusually large and fine. The following premiums were awarded to the successful competitors: For porcelain miniatures—R. Walzl, silver medal; for paintings and photographs—N. H. Busey, silver medal; for plain photos—Kuhn & Cummins, silver medal. At the Louisville Exposition there was a grand display of photographs, which called forth general commendation from press and public. We are glad to hear of these things, and pleased to notice our friends who have the energy and enterprise to take advantage of such exhibitions. Our valued correspondent, Mr. Webster, exhibited largely and successfully. Mr. Klauber, Mr. Wybrant, Mr. Washburne, and others exhibited highly praised work, and Mr. O. V. Koenitz had on view some excellent crayons. Altogether the array was spoken of as being a credit to the Art.

OWING to the numerous other calls made upon our time, and the steadily increasing exigencies of our business, we have decided that this year we will not issue our YEAR BOOK AND ALMANAC, but will devote all the means at our command in keeping up and increasing the valuable reputation of THE FRIEND. Our journal has gradually grown to an importance which demands exclusive attention. The articles which have been contributed to the YEAR BOOK will appear in due time in THE FRIEND, and we take this opportunity to thank those who have remembered us in that respect.

Our collection of editorial pictures has been enriched by some of the excellent stereo views of Messrs. Hamilton & Hoyt, Sioux City, Iowa. They are good illustrations of Indian life. There is ye noble chief "Green Cloud;" "Winnebago," with his rifle in one hand and our flag in the other; a group of "Squaws on horseback;" a "Familiar scene among the Indians," where hunting is carried on with a fine-tooth comb; "Oh, shades of Uncas!" a "Scene at the Agency;" "Chief and family;" "Squaw carrying wood;" and four good views of the Palisades.

WE have received some beautiful cabinet cards from our friend C. D. Mosher, Esq., of Chicago, perfect in every respect—in lighting, posing, and general manipulation they are unexcelled. In the interesting portraits he has sent us we notice some celebrities: W. F. Storey, editor *Chicago Times*; Hon. Sidney Breeze, Chief Justice of Illinois, and the Rev. Mr. Bartlett, a celebrated preacher formerly of Brooklyn, N. Y.; some beautiful ladies, and some children in artistic poses.

THE German Photographic Society of New York have established at Charles Cooper & Co's, 150 Chatham street, New York, a mutual labor exchange. Employers in need of help and employees in want of situations will please send address and full particulars to the above named place, where each case will be promptly attended to. We especially commend the above idea as inuring to the good of all concerned.

WE have received from Mr. Oscar J. Lawrence, Mansfield, Texas, a good cabinet from unretouched negative, and some useful hints which we condense and add: "If your varnish adheres to the paper in printing, polish the negative with a soiled handkerchief, lightly at first, increasing the pressure until bright and smooth." To remove excess of retouching, "Touch lightly with cardboard point moistened with toilet soap."

MR. JULIUS HALL, of Great Barrington, Mass., sends us some half dozen good cabinet cards and four Berlin heads C. D. V., which are on a par with the best. This gentleman's work reflects especial credit upon him, for they are solely the work of his own hands. Mr. Hall keeps up with the times, and, as he says, "Believes in the journals and brags of *THE FRIEND*."

FROM Gatchell & Hyatt, publishers, Cincinnati, Ohio, we have received a copy of the second edition of the work on "Ferrotypes," by Estabrooke, which embodies all the later improvements and practical wants of the ferrotyper, and contains as a frontispiece an excellent ferro by Mr. Estabrooke. This is the book on iron pictures.

WE open the fourth volume of *THE FRIEND* with this number, with greatly increased inducements to subscribers. In fact, *THE FRIEND* has become indispensable to every live photographer, no other journal being of as much practical value to the profession. We expect to add many new names to our subscription list, and to retain all our old friends.

A RECENT addition to our album is the genial face of Mr. William Heighway, so well known in our columns. The excellent portrait he sends us is from a negative by Anderson, of Kurtz's, and printed and finished at Gurney's, where Mr. Heighway now is.

WE are also in receipt of a carte view of "Davidson's cottage and incidental wagon." Skylight 6x8 feet, side lights on either side alike. This would appear to be photography "on wheels" to a purpose, and we have no doubt is just the thing for travelling.

THE American Photo Relief Printing Co. sends us a notice of removal to 624 West Twenty-fourth street, Philadelphia, where all orders, &c., should be sent. This Company is under the efficient care of Mr. J. Carbutt.

THERE is every indication of brighter times after New Year's Day. So cheer up—bad times are always followed by good. "Extremes meet," you know.

WANTED—A set of negatives from which to print the May illustrations of this journal. Please send proof and oblige the publisher.

FROM OLD TO NEW.—It is complimentary to the condition of American photographic literature to notice the many and copious extracts made from our journal and the reports of photographic society meetings. Evidently we are not any behind in theory, or, as the recent gratifying results have shown, in practice.

SNOW WATER.—As snow water has been shown to contain a certain per cent. of ammonia, and under all circumstances to rapidly absorb it, those who use it as distilled water should notice this fact.

THE PHOTOGRAPHER'S FRIEND



"LET THERE BE LIGHT."

AN ILLUSTRATED

BI-MONTHLY MAGAZINE,

Devoted to the Photographic Art,

PUBLISHED AT

No. 46 N. CHARLES ST.,

BALTIMORE.

Expose the Wrong! Maintain the Right!

March,

RICHARD WALZL, Publisher.

1874.

CONTENTS.

	PAGE		PAGE
Our Illustration.....	33	A Few Hints on Posing—ARTHUR JAMES MEL-	
Spots, Streaks and Stains—F. WALLER.....	33	HUISH.....	47
Long Exposure.....	34	The Revision of Prints—WM. MAYLAND.....	48
The Influence of "Retouching" on Photographs		Wants—DAVID BACHRACH, JR.—.....	50
—WM. HEIGHWAY.....	36	An Universal Adapter for Lenses—FRED. R. WIN-	
On the use of Hot Water in Photography—WM.		DOW.....	51
HARDING WARREN.....	36	Mounting and Mounting Materials—F. E. ELLIOT, 52	
Curious Customers, No. 7—The Family Man.....	38	A Substitute for Albumen as a Preliminary Coating	
On the Sensitiveness of Bromide of Silver, &c.—		—J. G. TUNNY.....	53
—HERMAN VOGEL.....	39	Doings of Photographic Societies.....	54
Minute Yellow Spots.....	41	Changes in Photographic Fashions—CHAS. WAL-	
Among the Lions, Daniel, No. 2.....	42	DACK.....	57
Correspondence.....	44	Reducing the Strength of Negatives.....	58
The Limit of Retouching—ROBERT FAULKNER.....	45	Foreign Notes.....	59
Formula for Instantaneous Photography.....	46	Miscellaneous, Scientific and Art Notes.....	59
		The Editor's Album.....	63

THE MEN WHO ADVERTISE.

Anthony, E. & H. T. & Co. <i>Photographic Stock and Chromos.</i>	Haworth, J. <i>Photo. Materials.</i>
Anthony, E. & H. T. & Co. <i>Adamantean Plates.</i>	Kelsey, C. C. <i>Banner Collodion.</i>
Anderson, J. A. <i>Photo Apparatus.</i>	Kellinger & Co. <i>Artists' Materials, Chromos, &c.</i>
Bachrach & Co. <i>Printers and Copyists.</i>	Lewis, R. A. <i>Collodion.</i>
Baldwin, A. H. <i>Photo. Materials.</i>	Magee, Jas. F. & Co. <i>Photographic Chemicals.</i>
Collins, A. M. Son & Co. <i>Cards, Mats, &c.</i>	Marcy, L. J. <i>Sciopticons and Magic Lanterns.</i>
Cooper, Chas. & Co. <i>Albumen Papers, &c.</i>	McAllister, T. H. <i>Magic Lanterns, &c.</i>
Clemons, J. R. <i>Paper and Varnish.</i>	Myers & Hedian. <i>Mirrors and Fine Arts.</i>
Cox, John. <i>Printing.</i>	McCollin, Thos. H., <i>Photographer's Materials.</i>
Carbutt, John. <i>Photo-Relief Printing Co.</i>	Pittman, S. E. <i>Mouldings, Frames, &c.</i>
French & Co. <i>Lenses, Frames, &c.</i>	Pattberg & Bro. <i>Frames, Mats, &c.</i>
Fitzgibbons, J. H. <i>Adhesive Picture Mounts.</i>	Phenix Plate Co. <i>Ferrotypes Plates.</i>
Fairbanks, Murphy & Co. <i>Passe-Partouts, &c.</i>	Peasel, Carman. <i>Stereoscopes, &c.</i>
Gatchell & Hyatt. <i>Stock House.</i>	Phillips & Jacobs. <i>Chemicals, &c.</i>
Gennert, G. & Co. <i>Albumen Paper.</i>	Ryan, D. J. <i>Stock Depot.</i>
Holmes, William B. & Co. <i>Photographic Stock, &c.</i>	Scovill Manufacturing Co. <i>Morrison Lenses.</i>
Hale, Kilburn & Co. <i>Picture Frames, Mouldings, &c.</i>	Semmendinger, A. <i>Photo Plate Holders.</i>
Hirshberg, Holland, & Co. <i>Photograph and Picture Frames.</i>	Trapp & Munch. <i>Albumen Paper.</i>
	Woodward, D. A. <i>Solar Cameras.</i>
	Walzl, Richard. <i>Photographic Stock, &c.</i>

THE

Photographer's Friend.

Vol. IV.]

MARCH, 1874.

[No. 2

Entered according to Act of Congress, in the year 1874, by
RICHARD WALZL,
In the Office of the Librarian of Congress, at Washington.

OUR ILLUSTRATION.

WE point, with pardonable pride, to the beautiful pictures which illustrate our present number. We think, that in producing and allowing us to publish those excellent studies of that revered time in our lives "the sere and the leaf," Mr. C. D. Mosher merits the thanks of all true lovers of our art. The difficulties attendant upon the photographing of the subjects of these studies will be recognized by all operators, and the masterly manner in which they have been overcome, the excellent posing and the *true* rebrandt of effect of light, and their many evidences of careful and superior manipulation, presents to the thinking photographer much that is worthy of study and emulation.

These photographs were made under Mr. Mosher's patent skylight, which, from the diagram we have before us, presents many unique and desirable improvements. The novelty consists in the skylight being adjustable, i. e., can be lowered or raised to any pitch or position required, remaining at all positions perfectly weatherproof.

The fine photographs which we present, speak volumes in praise of this light which must be admirable. We take this occasion

to thank Mr. Mosher for the readiness in which he answered our call for negatives. It is pleasure to have dealings with so accommodating a gentleman.

As Mr. Mosher says: "we have no especial formula or receipts, the whole secret lies in the lighting and posing, and in careful manipulation in the dark room." The production of first class work lies not in the materials, but in the use of them, and we hope that some of our many readers will be stirred to emulate Mr. Mosher and send us subjects worthy to rank with the two fine specimens which have so far embellished this volume.

SPOTS, STREAKS AND STAINS.

BY F. WALLER,
Operator with R. Walzl.

THIS article proposes to point out some of the effects and defects liable to occur in the making of negatives; their cause and cure.

Pin holes are little fine spots, like sand scattered evenly over the plate, which are transparent after the negative is fixed—Cause: overworked bath—Remedy: add silver to increase the strength, or add water

filter and boil to proper strength. Temporary relief may be had by taking the plate from the bath immediately upon being coated.

Particles of undissolved excipients in collodion will also give a very similar pinhole, but generally not so numerous and large.—Remedy: careful filtration.

Comets, or spots with little tails, proceed from dirt in the collodion, upon the plate, or dust in the holder or instrument. Care will obviate these.

Circular spots in the shape of rings occur where water has splashed upon the albumen surface of the plate.

Circular opaque spots are caused by excess of acid in bath or dirt on the glass; new samples of glass will often produce this disorder.

Spots are also caused by the slides being drawn too rapidly and splashing the plate, by particles of old film being left upon the plate, by bubbles in the collodion and by floating particles of dirt in the bath.

Streaks are produced by the collodion not being well set; these show most at the thick end of the plate, or by the collodion being over set, which shows at the thinnest end of the plate; by stopping the plate in immersing it in the bath; by immersing it too rapidly, causing waves from the dipper; by not being coated enough, which produces hair lines running the same way the plate was dipped; by the bath not being sufficiently iodized, which will cause alternate, opaque and transparent lines, running the same way it has laid in the bath.

Streaks are also produced by too strong a developer, when they will appear as more dense marks, running straight from where the developer was poured on. Fixing in cyanide will produce streaks which show more on the back of the negative.

Streaks are caused by imperfect flowing of the collodion or when it is too thick; they will appear as ribs running toward the end the collodion is run off of.

Network streaks occur from the presence of water in the collodion.

Over iodized collodion will give zigzag markings.

Too strong redeveloping solutions will also give streaks or an acron density to the negative.

Stains are caused by dirty glass or by dirty fingers in contact with the plate; by not wiping the corners of the holders; by not dripping the plate enough; by holding it up to look at before washing off the developer; by not washing off the developer well before fixing, or by not washing the hypo well away afterward.

Fogs are caused by overtime; by undertime and forced development; by light leading into dark room, camera box or holder, or by reflection in the tube; by want of acid in the bath, and by excess of it; by the bath not being iodized; by the developer not having acid enough in it, or by being too strong or weak by alkaline collodion. All fogs from light are easily discerned, as they are opaque, and all chemical fogs, except from dirty glass and excess of acid, can be rubbed away with the finger. With pure chemicals and care, any or all of these troubles should give but momentary difficulty. Cleanliness will cure all streaks, spots or stains, and convert any streak into one of good luck.

LONG EXPOSURES.

THERE cannot be a doubt that, as a rule, all photographers prefer short exposures to long ones. The whole tendency of photographic research, the prime effort of photographic experiment, has been based on this assumption. Else why has the optician been constantly tasked to produce, at any cost, lenses with a maximum of rapidity and a minimum of the drawbacks usually attendant upon wide aperture and short focus? Why has the chemist been tasked for new compounds and of excessive sensitiveness? Why have experimentalists introduced new developers of startling potency, and coaxed stray light of various colors to hasten the action of the light from passing through the lens to form the image?

Nevertheless, there is something to be said on behalf of long exposures. In Mr. Croughton's paper, read before the South London meeting on Thursday night, he mentioned, half in earnest half in joke, the case of a portraitist who, after arranging the sitter and uncovering the lens, retired for a quarter of an hour to some occupation, possibly to indite sonnets, possibly to enjoy a cigar. The statement of course evoked laughter, and a semi-indignant protest from the portraitist "who happened to be meant." Facts, however, far transcend fiction, and we have known of many cases in which good results have been obtained with long exposures. An old wax-paper worker once told us that he timed his exposures, as a rule, with a cigar, and he preferred his process to the more rapid dry processes, because in a long exposure slight movement of leaves, occasional passing objects, were of little importance, whilst with more rapid exposures the slightest movement of foliage gave blurred definition, and the deformed image of a passing figure ruined the picture. And it is in the fact that an amount of movement fatal in a short exposure is comparatively harmless in a long exposure, that some argument in favor of the latter is based. In Mrs. Cameron's pictures, which, despite technical shortcomings, have a peculiar fascination about them for many persons, it is alleged that much of the peculiar effect is due to the long exposure and movement on the part of the sitter. Indeed, we have heard it alleged that if the sitter grew tired, and took a turn round the room during exposure, no harm was done, provided he resumed precisely the same position again on returning to his seat! But that, of course is a fable. We are assured by an intelligent amateur recently that the lady in question waved an umbrella in front of the lens during the exposure, shading off the light from various parts, and necessarily still more protracting the exposure, necessarily long from the use of a slow lens. The old days of photographic portraiture abounded in odd stories, true and apocryphal, of long exposures. In the dull winter days it was

not an uncommon thing with the Daguerreotypist, after uncapping the lens, to retire behind a screen for a few minutes. We remember a celebrated portraitist who left a victim with the injunction to sit still, with his eyes on the lens, went out to luncheon, and, becoming absorbed in his newspaper, forgot the sitter until upwards of an hour had passed, and returned to find him in a state of hypnotic unconsciousness! In another case the portraitist, having left the sitter in like manner for a quarter of an hour, returned to find him standing looking out of the window, having imagined the operation was over as soon as the portraitist left the camera. Apart from the drolleries connected with the subject, old portraitists were quite familiar with successes obtained by long exposures. We remember, something like twenty years ago, securing a really good portrait with a sitting of twenty-one minutes, on a dull November afternoon; and we remember many satisfactory results with exposures which the modern portraitist would not dream of attempting.

We know many portraitists in the present day, who, if an almost instantaneous exposure cannot be secured, prefer an appreciable sitting, say twenty or thirty seconds to eight or ten seconds. The argument is, that during the first few seconds a nervous twitching of the muscles of the face, or a bad expression of the eye, is not uncommon, and that after the first three or four seconds this passes off, and an easy, calm expression follows. These facts will, of course, vary with different kinds of influence from the portraitist. Some of the most successful portraitists contrive to interest the sitter sufficiently to secure steadiness during a few moments. During which exposure takes place without the sitter having any consciousness that the supreme moment has arrived. In such cases, of course, the briefer the exposure the better. But there is much to be said on this question which has not yet been discussed so much as its interest demands. Mr. Neilson, of Edinburgh, could give some interesting experiences, as could Mr. Cooper, of Hull, and others who have produced life-size heads with

long exposures. We shall hope to hear more of the experiences of portraitists generally on the subject.—*Photo. News.*

The Influence of "Retouching" on Photography.

WM. HIGHTWAY.

LOOKING back a few years at the best specimens their existant, of photography, the most casual observer cannot but be struck with the wondrous improvement of late years. This progress is in the artistic, rather than the chemical manipulation. A look at the negatives of six or seven years back, it will be seen that in cleanness and beauty of chemical working, they are in no ways behind those of the present day, but what else do they show? flat uninteresting lighting, hideous posing, backgrounds flat, or worse, unmeaning and often impossible painted scenes, and the human face divine! every and an extreme roughness of the skin. In freckle showing with exaggerated prominence, the increased beauty perceptible in the negatives of the present day, we see the evidences of many improvements, artistic backgrounds, the lighting of the subject, the shadow effect, (laboring under the painful and ridiculous misnomer of "rembrandt effect,) more tasteful styles of pictures; and last, but not least, the retouching of the negative, to which, in a great measure, is the advancement of later years in a great measure due. Let me explain that I do not go to all the lengths that the partisan on the side of retouching, urges in extenuation of his abuse of this means of beautifying the picture, usually leads us; but I do believe in its right use. It has led us to a higher belief in the power of our art, and with this belief planted in the mind, the thoughtful photographer has aimed higher, and is still striving to surpass all that he has yet done, adopting, as his motto, the ambitious word of conscious power "Excelsior." By the aid of the pencil the artist is enabled to abolish the black

spot, which is the chemical rendering of the yellow freckle almost imperceptible in nature, and this of itself is no mean powers; but beyond this, what scope an artist has in perfecting his picture by being able to strengthen lights where necessary, and softening harsh shadows. There are, it is not to be denied, too many who prostitute this power, and so "beautify," that all the nature and individuality of the face is lost, and a marble-like smoothness substituted; but because injudicious and ignorant workers do this outrage on art with the pencil, shall we deny it the meed of praise it deserves, or decry it as a system pernicious and destructive to photography? Rather let us educate ourselves to know how far it may be carried to be a valuable servant, and avoid allowing it to become an exacting master. There are those, who, jealous of the power given to the retoucher, affirm that the beauty of the works of great masters in photography, is entirely due to the skill of their retouchers; but this is a great mistake, for never yet was a bad negative transformed into a good one by that means. Even were this silly assertion true, it would be rather an argument in its favor—only it exists so; an artistic picture is only to be produced by the photographer who has the artistic knowledge and knows how to apply it.

ON THE USE OF HOT WATER IN PHOTOGRAPHY.

BY WILLIAM HARDING WARDEN.

IT may seem absurd to many to recommend the use of so simple a thing as hot or boiling water in the making up of solutions used in the carrying out of our art; but the experience of many years has shown me that to the most simple things great value is to be attached, and to this is due much of my own success, as well the getting rid of all anxiety as to how the bath will act, what state it may be in, even when I allowed it to lie by some months after using it. Then, as to iron developer and fixing solutions, either cyanide

or hypo:—To feel that all times you can work with certainty—giving the requisite amount of light—is to me, and must be to others, whether amateur or professional photographers, a great relief. I am alluding to landscape work, that being not only the highest branch of our art, but the one most in request by the amateur. *Never to fail* renders photography a delightful occupation. Doubtless there will be many *pros and cons* as to why, and how, and soon, but with them I have nothing to do; I only say, use boiling water, and all anxiety vanishes. But to my task; and first of all—

The Bath.—The books and practice say—“use distilled water in its manufacture;” but if you take *aqua distillat* and boil it, you find it throws down heaps of impurities when silver is added to it. So take the ordinary water as supplied by the Liverpool Water-works, and *boil it*;—I say “*BOIL*” because if you add your silver to it before it boils you will have a great deal of trouble to get it clear in the filtration. Take boiling water, first placing the necessary quantity of silver in a bottle of sufficient capacity to make the whole quantity of bath you require—say forty ounces—and add to it five ounces of boiling water. It readily dissolves, and you at once obtain a saturated solution. Now add, dissolved in a small quantity of the same water—say one drachm—the amount of iodide of potassium with which you usually iodise your bath. It is soon precipitated; then well shake it, and it be found well taken up. Now add the remainder of the water, shaking between each addition, and allow it to stand for half-an-hour, with occasional shaking. It will become of a dirty yellowish-brown colour. When somewhat cool proceed to filter it into your bath vessel, and, when cold, it will be quite clear and ready to work. Possibly it will be alkaline; if so, add a little acetic acid just to make it faintly acid, and never touch it afterwards, except after use. Always filter it in the morning, and keep it from the light. It will never give you a moment's uneasiness, and will *always* work well. When it gets saturated with

ether and alcohol, which all baths are liable to after hard work, do not fuss with it. Precipitate all the silver with carbonate of soda; wash it well with plain water—the last two washes with boiling water; then re-dissolve it in nitric acid and boiling water up to the same quantity it was before, adding fresh silver to make it up to the original strength; filter and test for acidity, adding a dilute solution of carbonate of soda, ten grains to the ounce of acid. If alkaline, add a few drops of acetic acid. It will work with any collodion, and it only needs filtration the morning after you have used it. It may then be put away with the certainty that, when you next want it, it will give you good pictures.

The Developer.—Make this after your own pet formula, only make it with boiling water. Add a little white sugar to it, filter it, and it will keep in good condition for months, being always ready for use.

Fixing Solution.—The same remark applies to the fixing solution—use boiling water.

Now, comes the *why* this answers so well. Because making a bath as ordinarily made, and allowing it to stand in the sun, does not eliminate all the organic matter therein. The boiling water does so at once; and it does more than this—it gathers oxygen from the air more readily, allowing it to be used at once, always giving good pictures. Then the filtration the morning after use, instead of at night, allows all impurities to settle, and also any iodides that may be in solution in the bath to take their proper place. When you have to use it you know it cannot be your bath that is wrong; it must be due to the light or to some other source, and so the blame gets laid on the proper shoulders.

Then the developer is really a saturated solution, and all impurities in the water being got rid of, it gives you at one operation—supposing the light to be good—a picture of the proper printing density. It obviates the use of pyrogallie acid—iron and silver being amply sufficient to secure all that you need. Sugar being added to it not only makes it keep, but equalizes its action, and

saves acetic acid when developing large plates, and also using a quantity of developer. You never require to use so large a quantity of developer as to strength in bringing out you image. The same applies to the fixing. If working at home, and you have the facilities for washing with warm water—or even using, in cold weather, your solutions warm—you will still further reap the benefit.

CURIOUS CUSTOMERS No. 7.

"THE FAMILY MAN."

The consideration that the "family man" is an extremely useful animal—indeed I might put it that he is almost an indispensable specimen of the *genus homo*; ought to reconcile us to the little inconveniences his advent in our gallery invariably puts us to; but alas! we are such an irritable, discontented and misanthropic class that we do not see any beauty in the sight of that comfortable and portly personage accompanied by an anxious and loving progeny who direct his movements and assume the responsibility of his appearance, deportment and expression.

Scene the First. They enter the reception room to select the style for dear pa's picture. Here, each one has his, or her idea of the style best calculated to do full justice to pa's peculiar form of beauty. "We must have the chiaroscuro effect, for that is splendid for one whose features are bald and prominent as father's"—declares the heir to the domains, a youth who, in virtue of his important position in the family, affects a loud tone and a knowing air—"Oh pa, you *must* have some of those *sweet vignettes*,—they are *so poetic*"—urges sweet feminine eighteen, who is suspected of unrequited affection and a broken heart, which has brought out a wealth of poetic feeling in the young lady. Others declare in favor of the three quarter length standing, while others think that the head and breast is far better; and mamma is of decided opinion that papa's legs are so good that he ought to be taken full length.

Scene two, finds them all hard at work directing the artist in his labors. "Oh, you know, Mr. Photographer, the only good view of our father's face is quite full"—this is the opinion of the eldest hopeful; but the young lady of the poetic temperament suggests—"now don't you think the three-quarter face showing the left side, is *ever so much* more classical?" Oh no," says master Reginald, who being a clerk in a wholesale bookseller's is therefore thoroughly aesthetic in his tastes. "Oh dear, no! the other side is far better;" all the other members of the family train have their peculiar ideas, and as no two agree on any point raised, things look very hilly, and there is music in the air as they grow disputatious. Poor Mr. artist, who has been trying to bring matters to a focus in a vain endeavor to please every body, finds that he can make no headway at all, until he clears out the disputants—a thing he ought to have done long ago. He makes several views of the head of the family's head and thus provides argument for a lively.

Third scene. The judgment on the proof. In this, all the ingenuity of objection is brought to bear on the pictures shown. One is a *little* too full face, and another barely enough; yet another, would be excellent, if the slivet had no shadow on it, while there is not a shadow of doubt that another would be more artistic if there was shading to the "biled rag"—and how nice this one would be, if the neck-tie were straighter, and what a pity pa's nose looks so crooked in that one. Oh! what a beautiful time one enjoys when four or five individuals of healthy imagination and not too modest utterance of thought, sit in judgment of our work! What a pleasure it is to hear their candid opinion of our artistic abilities. I think there is nothing so well calculated to extract from a man's composition, any little superfluous self conceit with which it may be embellished, as listening to criticism on proofs; nor is there a more pious penance for sins of vanity and vain-glory than showing proofs to the loving relations of the family map. Thank heaven! the sitter himself does not

trouble the discussion with any views of his own, but leaves the decision to his olive branches, with—"please yourselves, children—and I am satisfied"—but the worst of it is, that, like the deaf adder, they refuse to be charmed, be you charming as you please—though the chances are about a thousand to one that you are anything but charming under the circumstances. If they do, at last determine on a selection, they won't like your prints, and then there is another scene. In fact there are no end of scenes until they are no more scene, (I should say *seen*, but the subject has agitated me so that I hardly know what I write.) When you see the family man, enter your gallery, summon all your forbearance and tenderness, and lay in a good supply of the christian virtues; and by all means swallow a soothing powder or you are lost. Make all snug below and aloft and look out for dirty weather is the advice of

WILLIAM HEIGHWAY.

On the Sensitiveness of Bromide of Silver to the So-called Chemically Inactive Colours.

BY PROF. HERMANN VOGEL.

It is known that certain colours—such as red, yellow, and green—act very slightly, or not at all, upon a photographic film. This circumstance not only puts a difficulty in the way of the photographer of colours (oil paintings, &c.), but is also a stumbling block to the portrait photographer, who has to depict not only coloured drapery, but yellowish complexions, blonde hair, and red cheeks. High lights which are tinged with yellow appear dark in photography, and shadows when tinged with blue are reproduced lighter than they should be, the only way of subsequently mending matters being by means of retouching upon the negative.

This abnormal sensitiveness for colours possessed by photographic plates is more conspicuous when the lines of the spectrum are rendered by photography, when beyond the violet a vigorous action is apparent, while

in the visual spectrum—according to Schultz Sellac—the action is not perceived farther than line E in green. Recent experiments with bromide of silver have, however, shown me that the sensitiveness of the body not only reaches much further, but that if certain accelerating substances (or "preservatives," as they are sometimes called) are employed the action goes as far as red—that is to say, reaches a point where hitherto it has been to photography as the darkest night.

I recently received from England some Wortley dry collodio-bromide plates. These I exposed to the spectrum, and found to my astonishment that they were more sensitive at the line E in green than in light blue at the line F. Here, therefore, I obtained a result in regard to sensitiveness in opposition to experiences hitherto recorded, the film being more sensitive for colour supposed to have little chemical activity than for a vigorous chemical tint. It is true not all the Wortley plates gave this result, some of them giving it but faintly, and others not at all. At first, I believed the same to be due to alkaline development, and said as much, but found afterwards that an iron developer gave similar results. This circumstance caused me to undertake a closer investigation of the sensitiveness of bromide of silver in connection with the spectrum colours.

My apparatus I prepared with the aid of a photographic camera fitted with a Steinheil lens, and this was directed against the prism of a spectroscope. The slit was 0.25 millimetres wide. The sun's rays were thrown upon this with the aid of a Foucault Heliostat, which my friend Dr. Zenker placed at my disposal; the spectrum image from D to G measured thirty-five millimetres. For comparative experiment I chose the time from eleven a. m. to five p. m., with a sky perfectly free from cloud—a thing rather difficult to obtain at this time of the year. The period of exposure lasted, as a rule, about ten minutes. After exposure, the plates were developed by means of sulphate of iron. At the very first experiment I found that the sensitiveness of the bromide of silver stretched

to a point much further than Dr. Schultz Sellac has shown. This gentleman only obtained an action of the ultra-violet near line F in blue. In my experiments the sensitiveness in every case was shown to extend beyond line F, more or less far according to the transparency of the atmosphere.

I employed the bromide of silver in two forms; that is to say, in a moist state, with nitrate of silver solution attached to it, and again, as dry plates, produced by washing off the silver solution and drying. They acted differently. It was found that dry bromide of silver has a much greater sensitiveness for colours than bromide of silver moistened with silver solution. The latter, on development with an *acid* developer, showed sensitiveness to midway between D and E—near to the yellow, therefore, while the dry film gave a sensitiveness for two millemetres beyond, into the orange.

The nature of the impression on the two plates was also different. In the wet bromide of silver an exceedingly vigorous action was observed between G and F (in indigo and blue). At F, however, it vanished rapidly, and only a slight action was perceptible beyond E. The dry plate showed a much weaker action in the blue than the other, but the impression went off more gradually, and reached, as already stated, as far as D.

Dry bromide of silver is therefore more sensitive for the less refrangible, and wet bromide of silver for the highly refrangible, blue rays of the visible spectrum.

For ordinary photographic plates, a solution of silver is a vigorous accelerator—that is to say, it increased the sensitiveness, because it combines with the iodine or bromine set free from exposure. When this action takes place principally in blue, it may be explained that the blue rays are more vigorously absorbed by the wet film than the others. I was aware last summer, when experimenting with iodide of silver, that a body only then enhances the sensitiveness when it is not only capable of combining chemically with free iodine, but absorbs also the chemically active rays. For instance, dry pyro-

gallic acid, which combines with iodine, makes an excellent sensitizer, but in solution is of no avail, as it allows the chemical rays to go through unimpeded. Optical and chemical action must be combined in a body in order to be an accelerator.

As already remarked, the sensitiveness of the dry bromide plate gradually diminishes from blue to red. Of the phenomenon which I observed in so marked a degree upon most of the English bromide of silver plates—viz., a lack of sensitiveness from violet to blue, and an increase from blue to green—I observed nothing when working with bromide of silver plates prepared by myself. The explanation just referred to, of the action of nitrate of silver solution upon bromide of silver plates contained a body of some kind which absorbed the green in a higher degree than the blue. So far as is known a yellowish pigment is sometimes added for the accredited purpose of checking the chemical blue rays, but it is possible that the body here employed does not absorb the blue rays, but allow them to pass, only hindering them in some degree.

The Wortley plates contain nitrate of uranium, gum, gallic acid, besides the yellow colouring matter. To ascertain whether this coating exerts any action, I washed one of the plates with alcohol and water, and obtained in that way a plate which did not show any increased sensitiveness in the green. I next essayed to impregnate bromide of silver with a substance especially capable of absorbing the yellow rays, and which combines with free bromine and iodine, in the hope by this means of improving the sensitiveness of the plate for yellow rays. I chose coralline for the purpose, which Professor Liebermann kindly placed at my disposal. A very dilute solution examined under the spectroscope gives an absorption band between D and E, and stronger solutions cause the band to be increased beyond D; on the other hand, blue near F is allowed to pass to an appreciable extent.

I dissolved the coralline in alcohol, and added to it some of my bromised collodion, so that it became coloured of a vigorous red.

With this collodion some bromide of silver dry plates were prepared, which were tinted of a reddish colour, and these submitted to the action of the spectrum confirmed my previous speculations; the plates showed themselves to be sensitive in the indigo portion of the spectrum, and the sensitiveness diminished towards light blue, became weak at F, then increased, and appeared in yellow as vigorous almost as in indigo. I had therefore discovered a method of producing bromide of silver plates which could be acted upon quite as vigorously by a colour held to be bereft of active chemical action—as, for instance, yellow—as by a colour such as indigo, which hitherto had been considered to exert the greatest chemical action.

After these experiments, I was led to hope that any other body capable of combining with bromine, and which would absorb red vigorously, would also heighten the sensitiveness of bromide of silver for the red rays. Such a substance I found among the green aniline colours. These absorbed vigorously the red rays midway between D and C; the absorption stretched with greater concentration farther towards D, yellow, green, and blue passing through almost intact. A collodion tinted with this aniline green was found, indeed, to be sensitive into the red. The sensitiveness diminished from indigo to yellow, and then increased, and on that spot where the absorption band had been remarked, there the film was most sensitive to red.

From these experiments we may conclude, I think, with tolerable accuracy, that it is possible to render bromide of silver sensitive to any desired colour, improving its sensitiveness for certain colours. It is only necessary to add to the bromide of silver a suitable body which absorbs one chosen colour, but not the others. Perhaps we shall get so far as to photograph the ultra-red spectrum, just as we have depicted in the camera the ultra-violet. The till now supposed photographic inactivity of certain colours, which is so often a stumbling block, would then be obviated. In how far the results are of practical impor-

tance the following experiment will show:—A blue band upon a yellow ground was photographed. With an ordinary iodide of silver collodion plate, I obtained a white band upon a black ground. With a bromide of coralline plate, upon which blue and yellow acted with equal power, nothing could be obtained, I foresaw, and for this reason, I put in front of the lens a yellow glass plate, which absorbed the blue light, and allowed the yellow rays to pass through unheeded; and then I was enabled to obtain, after a sufficiently long exposure, a dark band upon a light ground.

The matter is, however, not simply a technical one, but also of interest from a scientific point of view. Until now we believed that the haloid salts of silver could only be chemically altered by rays which they absorb in to a notable degree, and the value of “accelerators” or “preservatives” was scarcely credited (Schultz-Sellac.)

My experiments teach that in the sensitiveness of photographic plates it is not only the optical absorption power of the sensitive silver salts, but also the optical absorption power of substances mixed with them, that exercises an important influence in the matter.

MINUTE YELLOW SPOTS.

DEAR SIR:—I read with much interest in the *News* of 28th November, your article on “Minute Yellow Spots on Prints,” having been at one time myself in just such a fix as your correspondent appears to suffer from. During the seasons of 1868-9 and 1870 I was so pestered by yellow spots on my prints that I began to think seriously of entirely giving up photography. Sometimes I had dozens of prints to throw away which were worse than useless, and many of those with which I was fain to content myself were so spotted that there was more time spent in touching out than they were worth. I applied to every one I thought could help me, and, amongst others, to yourself, but nothing seemed to have any effect. You suggested air-bells in the fixing bath; but all the care

I could bestow on them still left me where I was. I asked Mr. Bovey, who very kindly took the trouble to write me a private letter. He said that at one time, when working in the west of England, he had been troubled in the same way, and had found the cause to be *impure* water for washing. Up to this time I had been using spring water; after his suggestion I tried Tweed water, and found a very slight improvement; but, as I still had the spots in great numbers, I was sure the water was not the sole cause. I give you this long description of my case that you may the better imagine my state of despair. This continued for nearly three years, when, fortunately, I found means of getting my prints free from the spots, and, as I can at any time produce the spots by neglecting the simple precaution which saved me from them, I think it just possible that your correspondent may reap the benefit of the hint.

I noticed that as my business increased, so did the spots; and, again, on those days when I had a very large number of prints I had more spots than at times when the prints being toned were fewer. By degrees I discovered that those prints which came first out of the fixing bath were worst, and that those last fixed were free from the spots, showing, as I thought, that they could not be caused by imperfect fixing, or those fixed in the soda as it got exhausted had the best chance of suffering. This led me to suppose that there might be some fault in the mode of washing. My practice had been to lift the prints out of the fixing bath into a dish of water, and each batch joined them until all were ready to be washed. I never thought of washing the first lots till all were ready, and this was, I found, the cause of the spots. I now drain the prints as free from hypo as possible as they leave the bath; and in fact, I find it a good plan to lay one over the other and, with a press, squeeze out as much as possible. Then put them into plenty of water, and wash each print thoroughly with the hand in this and in another water before they are allowed to rest, thus completely removing the hypo from the surface of the

print. They are then left in clean water until all the prints have got to the same stage, and this I find a complete cure. But just in proportion as the plan is perfectly or imperfectly carried out do the spots appear. I cannot give any theory for it, unless it may be that the diluted hypo decomposes more readily than the strong solution, as the spots appear to be caused by some sort of decomposition, and leaving them for the same length of time in the strong bath would not produce them.—I remain, yours sincerely,
WILLIAM GREEN.

P. S.—The spots generally begin to appear about ten or twelve hours after the prints leave the fixer, while still in the washing tank, and I have noticed that they come fully out in about two days, after which time the prints keep any length of time, mounted or unmounted, without further change than you expect from a properly fixed and washed print.—*The Photographic News*.

AMONG THE LIONS.—Continued.

BY DANIEL NO. 2.

After leaving our friend the "ink" dispenser, I determined to visit our respected patriarch, Mr. Bigartist.

"Here," soliquized I, "certainly I will find the information *The Friend* requires; from him; we will learn the photographic future." With this intent, I hied me farther up Broadway until I stood before a very handsome store whose two large windows were amply filled with a display of specimens, and over all the modest announcement, "Bigartist, Photographer."

There is no time for hesitation when duty calls. I stepped within, and from the many who crowded the store, I easily distinguished the imposing physique of the object of my search.

He was stroking his long beard, and a good-natured smile gave me my welcome.

I plunged at once into my subject, "Mr. Bigartist," said I, "you know the object of my visit, you know how intimately connected with my own is the welfare of Photography,"

—he interrupted me by laying his hand upon my arm and saying, "Well, that reminds me of a story."

The boys all gathered around with a smile all ready; books, pictures, customers, all dropped to listen to the story.

"Full well they laughed with counterfeited glee,
At all his jokes, for many a joke had he."

"Well," began Mr. Bigartist, "your visit reminds me of one which an Irishman paid to another who was lying down."

"Paddy," said number one, 'are ye asleep?'

"No," answers Paddy.

"Thin lind me the loan of a quarther."

"I'm asleep," says Paddy, snoring, 'and so, says Mr. Bigartist, like Paddy, when you want to make me talk, I'm asleep.'

We all laughed heartily, and the listening circle returned to business.

Accompanied by the genial proprietor, I made the tour of his large establishment; on every side I found evidences of taste and amplitude of means.

In the sky-light room I found the infant-faced Mr. Cistern, who with his hair in an "admired disorder," was ducking behind a black cloth. He being too busy to converse, I passed on to the dark room to be greeted heartily by the bird-like Mr. Warchime, the dark-room operator.

His sleeves were rolled up and he looked as good natured and of as many colors as an old dark-room towel.

After exchanging the usual courtesies and taking a glimpse at the printing room, where Mr. Fryart reigns, we wended our way to the store again, our downward journey made merry by Mr. Bigartist's humorous sayings.

Busy as ever down there, and the boys all happy.

Resolved to make one more attempt, I said, "come, Mr. Bigartist, tell me what you think of the future."

"My boy," said he, patting me upon the shoulder, "you ought to be the last man in the wurreld to spile the hilarity of this occasion; why you are as callous as the girl out West." Here a general break was made for us, by clerks, boys and all, to listen to the story.

"You know," related Mr. Bigartist, "they go barefoot out there a great deal, and their feet get like unto a horn. They were burning cornstalks one day, and one strapping lass was standing by the fire, when her mother spoke up,

"Anner Marier, thars a live coal under your foot."

"Which foot, Mar," drawled back the daughter. Accompanied by the loud guffaws of all hands, I left no wiser than I came, still I thought clasping my very thin pocket book mournfully—The photographic future is no "joke."

Somewhat saddened by my recent defeat, I thought I would try as a last resort, the establishment of C. D. Franks & Co., for I reasoned among the "lions" I shall find assembled there, and from their experience, I must surely find what I seek for, "tis History which contains the future."

Taking a stage I was soon deposited at the door of this time-honored gallery.

On ascending the broad and easy stairway, I found myself surrounded with large and excellent portraits of celebrities most of whom are gone, for where are the great of to-day?

As I was conning over the memories these pictures excited, I heard a heavy foot-fall upon the stair above me. I knew that sound well. None but Jack Falstaff was capable of producing it. I shall not describe him—we all know that massive form, that Hyperion curled head, that bovine neck so amply displayed.

He came toward me with that grace which distinguished this photographic Nimrod, extending his hand—which closed over mine with the grip of a vice, he said,

"Well, young man, how do you find yourself, eh?"

Returning by an enquiry as to his health, I proceeded to state the object of my visit apart from its friendly nature.

Ha, ha, ha, laughed Falstaff, "my opinion is that there is no future for us, none at all, photography has got into the hands of small men, and what can you expect of men

four feet high." He looked down at me complacently as he spoke, and I shrank still smaller in this "lion's" gaze.

"But come," said he, "let us go up and see Lien."

Up stairs we went, and in the sky-light room we found the renowned O'Lien. Beside Falstaff, our great photographic tutor is a small man, but experience has given him a dignity which more than compensates for size.

After the usual greetings were exchanged, I explained why *The Friend* had sent me upon this errand of enquiry.

"Well," said Lien, if you ask me my opinion, there has been too much written upon the subject already. Were a man to read and believe all that is written on this business, he would go formula mad.

"The only formula is——there, but I won't."

I looked at him enquiringly.

"I was going to tell you my 'brain' formula, but I won't."

Shaking him wildly by the hand, I thanked him again and again *that* would have hurled my toppling reason from its throne.

Never being given to loquacity, Mr. O'Lien soon left us to attend to something about his establishment.

Falstaff then seated himself in a large and fortunately strong chair, and discoursed—"The majority of the profession don't understand themselves; why sir, the days when we turned out our hundred dozen cartes are gone by, they will never come again, the golden days of photography are over." Where will you find the positionist, one of these modern 'scopticians' who can do this; he arose and taking a large and very heavy head-rest with one finger, he carried it easily across the room.

I was not tempted to follow his example.

"Jack," said I, in that engaging way I have, "do you know where we could go out and get something to eat?"

He looked down at me with a knowing smile, a prodigious wink agitated his left

eyelid, and seizing his hat he strode down stairs into the street, followed by myself.

We entered a restaurant, where upon his appearance a great commotion ensued. He had evidently "been there before." Waiters rushed here and there, and soon we were seated at a table which groaned with viands.

How fast they disappeared, and how often they were washed down by libations, and the good stories of hunting and picture taking, I leave to your imagination..

"He was a mighty hunter," and an equal eater.

[To be Continued.]

"CORRESPONDENCE."

Mr. C. D. Mosher, writes to us as follows, in a friendly way, but we cannot resist the temptation to publish his excellent ideas.

"I wish you would excuse my writing an article for the *Friend*, something I never have done, although, I most *heartily* approve of exchanging views and experiences, ideas, and modes of working through the medium of journals treating upon Photography, or with each other in a friendly, social way."

My theme for the past twenty-three years has been "picture making," from the beautiful daguerreotype to the artistic Berlin Rembrandt Photograph, that is so admired by all art lovers."

"This subject cannot be exhausted in one letter, nor in a life-time; *to-day*, I am learning faster than ever, my store of knowledge can never be sufficient, hardly you might say in working order. I have never felt more ambitious to give my customers superior work than I am *to-day*, and to the student of artistic Photography there never will be a time when he can feel he has attained the highest round in the ladder. There must always be a yearning, a desire within his soul to do better, to ever strive and search after the new and excellent. Something in advance of all former productions."

"There is no better plan for the student Photographer to improve himself in his

knowledge of the art than by traveling, seeing fine specimens, and by comparing the works of acknowledged artists and the manner in which they work their lights and general manipulations in the dark room, for there lies the secret of producing those beautiful soft shadows—those fine effects of light and shade which all admire. See the processes of printing and toning, and always be upon the lookout for any improvement or suggestion that is new, and treasure it up until you can apply it with your own experience and study. Improvement will always pay doubly in dollars and cents, as well as in internal satisfaction. Increasing demands and a growing interest in the art will stimulate you to extra exertions to advance our art, which is predestined to excel all others in portraiture or landscape drawing.

I can even now see dimly the hand writing on the wall, that the artistic Photograph for life-like truth is destined to sweep away all opposition. Let us push ahead with all our energy to reach the highest pinnacle on the height on which our beautiful art stands."

THE LIMIT OF RETOUCHING.

BY ROBERT FAULKNER.

The legitimate plea for retouching is based upon the limited capacity of photography. Inasmuch as the beautiful, luminous, and warm shadows we see in nature are reproduced by photography as blacks, it is perfectly legitimate by means of retouching to veil this blackness; the high lights may be strengthened, and the spots, freckles, and defects of manipulation may be softened or removed; beyond this is a violation of truth.

At the last exhibition of the Photographic Society many photographs and enlargements might have been pointed out in which all the endless variety of texture, form, light and shadow to be found in nature were ruthlessly destroyed; all the pulp and suppleness of flesh removed, all character and expression blotted out, until the effect of a soulless China mask had been obtained.

An important enlargement, a lady's, was especially untruthful, the greater part of the face being in shadow; that portion which was light was placed in contact with a dark background, and appeared as hard and unvaried as a white line ruled by machinery on a black ground would be. It should be remembered that under these circumstances photography would always give a much harder outline than is found in nature; and, therefore, the utmost care should be taken to preserve all those indications of form of which the outline of a face is full, also refined and subtle, and each having its light and shadow. Even spots and freckles may be allowed to remain, because they would in all probability help to round off the outlines; and the background ought certainly to be varied and lighter where it comes in contact with the face. Often in the works of great painters a double outline may be traced, made by the dark transparent color used for finishing the background being taken up to the outline only here and there; and in some places it is left by a crisp touch, which gives great spirit and animation. It must be observed here that there is no such thing as an outline in nature; it is merely an expression. To do as little as possible, and to know where to leave off, ought to be the aim and study of the retoucher. He is the prince of artists and of men who knows when his work is done. On this Appelles founded his superiority over his contemporaries, &c., &c., *Fuseli*, 180th *Aphorism*. The sacrifice of the essentials of art for its refinements and puerilities has, in all ages, caused the destruction of schools of painting; and excessive retouching will, in like manner, destroy all the value of photography. "Truth above all things," should be the motto of all followers of photography, for the art is valuable only so far as it is truthful. As a noble example of untouched photography, I would draw attention to the portrait of Sir Henry Taylor, by Mrs. Cameron. In this picture the man lives and thinks. It is great in style and unconventional in treatment, and possesses the rare quality of action in repose; the

modelling is excellent; every line of thought and suffering is well expressed, but not obtrusively so. Place the negative from which this picture was produced in the hands of a tasteless, soulless retoucher, and to what a vapid, expressionless thing he would reduce it, especially if instructed to give it the *Berlin Finish*! What a priceless possession an untouched photograph of Shakespeare would be! How unsatisfactory and tantalizing a retouched one! Again: how precious to the bereaved is the faithful image of a lost friend, or a dear relative; remove expression, character, or even peculiarity, and how little comfort such a remembrance would bring! The mourning survivor looks upon the shadowed picture of the loved one; he searches for the familiar lines of thought or age, the marked and decided feature, the pronounced characteristic. Too often he seeks in vain—all is smooth and pretty, meaningless and vapid; for the vigorous portrait painted by the honest sunlight has been submitted to the tender mercies of the RETOUCHER!

FORMULA FOR INSTANTANEOUS PHOTOGRAPHY.

[A communication to the Photographic Section of the American Institute.]

ACCORDING to my promise I will give this evening the formula of the process by which was taken, in two seconds, the portrait of Mr. Gardner.

I seldom expose more than five seconds with my quick worker, and I have often taken portraits in ten seconds with an 8-4 lens of the ordinary rapidity. This is the result not of a new instantaneous process—for there is no process really instantaneous, as there are no chemicals which are more sensitive than those we employ—but of good light, good lenses, and good chemicals properly managed.

Every photographer knows that the sensitiveness depends almost entirely on the pyroxyline, which must give a film nearly structureless, porous, and, above all, as free from nitro-glucose as possible; for the pres-

ence to a certain extent of that body is exceedingly injurious to sensitiveness and gradation of contrasts, the film acting then as an organic medium. Such a film is, however, very useful for special works, and gives very good results in the collodio-chloride of silver and other emulsion processes.

Having been requested by some members of the Society to give my formula for this variety of pyroxyline, I will also comply with their request in describing the negative process, which is the object of my communication this evening.

To prepare the pyroxyline mix in a thick porcelain mortar, heated to about 120° F., one pound of pure dry saltpetre with one and a-half ounces of water and twenty-six fluid ounces of sulphuric acid at 66° Baume. I immerse *immediately*, by small quantity at a time, as much cotton well pulled apart as the mixture will cover, taking care before each addition that the cotton immersed be well impregnated with the acids. During the operation the vessel should be covered, and the cotton turned over several times, in order to ensure an even combination. The temperature should not be allowed to fall below 140 to 150° F. After twelve minutes of immersion the pyroxyline is rapidly washed in water, until the blue litmus paper shows no trace of acidity.

It is then treated by a very diluted solution of bicarbonate of soda, washed four or five times, and, when thoroughly dry, immersed in alcohol during twenty-four hours. It is afterwards washed several times in alcohol and allowed to dry spontaneously. The organic pyroxyline for dry plates and emulsion processes is prepared by the following formula:—

Nitric acid at 41° Baume.....	4 fluid ounces.
Sulphuric acid 66°.....	5 “ “
Temperature.....	150° F.
Time of immersion.....	10 minutes.

The washing in alcohol must be dispensed with, as its object is to dissolve the nitro-glucose which is necessary in this pyroxyline.

The acids found in the market as C. P. can be depended upon, as they are nearly of the strength given in these formula.

The collodion is composed of one equivalent (by hydrogen) of iodide and one-half equivalent of bromide, dissolved in thirty fluid ounces of plain collodion. The formula I use exclusively stand thus:—

Plain Collodion.

Ether conc.....14 fluid ounces.
Absolute alcohol.....4 “ “
Pyroxyline.....200 grains.

Bromo-Iodide Solution.

Alcohol at 95°.....12 fluid ounces.
Iodide of cadmium... $\frac{1}{2}$ eq....92 grains.
Iodide of sodium..... $\frac{1}{2}$ eq....75 “
Bromide of sodium... $\frac{1}{2}$ eq....52 “

Mix. With well, settled, plain collodion one-half equivalent of iodide of sodium can be substituted for the iodide of cadmium, and the collodion used a few hours after its preparation. It gives somewhat more intensity but is not so stable, and will be rapidly decomposed with most samples of ether. I have had lately much trouble in finding ether of good photographic quality. The best I have found is manufactured by Mr. George A. Cassebeer, and I recommend it specially to stock dealers and photographers. The preparation and management of the silver bath is of great importance; the purer the solution the greater the sensitiveness and more perfect the negatives.

Operators keep generally very large baths in use in order to be able to work even as long as one month without changing the solutions. This, in my judgment, is wrong, for the reaction of ether and alcohol, the solution of organic pyroxyline, and of other organic matters, will soon render the bath unfit for great sensitiveness and delicate operations, such as taking portraits. It is certainly more rational to use small a solution, and to renew it every two or three days.

In preparing a silver bath the purity of the water is no less important than the purity of the nitrate of silver. All waters, and especially our Croton water as it comes from the pipes, contain organic matters in solution

and in suspension, which must be eliminated by distillation, and better, for our purposes, in the following manner:—

To each gallon of water add one drachm of nitrate of silver and one drachm of the testing salt solution; expose to the action of light for three or four days, and filter and keep for use. Should the water be wanted for preparations where nitrate of silver is objectionable, add, after the insolation, fourteen more drachms of the salt solution, and filter.

To make the silver bath dissolve in one pound of purified water half-a-drachm of iodide of sodium, one drachm of the iodide solution, and seven ounces of nitrate of silver. Add afterwards four pints of water; filter, and dissolve one more ounce of nitrate of silver. The bath is then ready for use, and should be kept in the dark room.

Developer.

Water.....8 pints.
Sulphate of iron and ammonia.....5 ounces.
Sugar candy.....2 “
Sulphuric acid.....1 fluid drachm.

Boil the solution for about five minutes, add one and a-half pound of acetic acid No. 1, and filter.

Iodide Solution.

Water.....4 ounces.
Iodide of sodium.....120 grains
Iodine.....to saturation.

Testing Salt Solution.

Water.....1 pint.
Salt, dry.....170 grains.

Each drachm of this solution precipitates four grains of nitrate of silver.

P. C. DUCHOCHOIS.

A FEW HINTS ON POSING.

BY ARTHUR JAMES MELHUISE.

MUCH experience has convinced me that the principal, if not the only thing in which an eminent portrait photographer, like the late Mr. Williams, differ from others is in the art of posing. Twelve years ago I used

the same chemicals and formula as I do now, the only improvement I have made being in posing, and in this respect I am still a learner. Then I thought myself pretty well perfect, now I have a much more modest estimate of my abilities. I have learned much, but know that I have more yet to learn; and if by chance one of my early triumphs crops up, I behold it with dismay, and hurry it out of sight. I profess to offer but "a few hints on posing," for to give a comprehensive view of the subject would fill a volume rather than a page. I will confine my remarks this year to the vignette head, and should another year still find me at my post, I may have something to say about the standing portrait. If in my desire to be concise I appear abrupt, practical photographers will, I am sure, excuse it.

The first thing to be done is to notice which is the better side of the face, as the two sides almost invariably differ, the difference being sometimes in the eyes, but generally in the nose, the outline of which is often quite different when seen from the two opposite sides. A few years of experience will enable one to see at a glance the most favourable side. Moles, scars, and the like are not of much importance, as they can be easily touched out in the negative. The next thing is to observe whether it is a face that is better when looking up, down, or straight-forward. Here again the nose is the feature to be most looked after. A hanging hook nose, if taken with the head bent down, will almost reach to the mouth, whilst the "turn up" shows to most advantage in that position. When the side face is good it should always be taken, as most persons are proud of a good profile. Great staring eyes *must* look more or less down, whilst small eyes are better looking up. Gentlemen with retreating foreheads generally seem to think that the great thing is to throw back the head as much as possible—that, in fact, it looks dignified; but if one gently remind this class of sitter that it makes them look all chin and no forehead, the artist will have no further trouble on this point, except it be

to avoid the opposite extreme. Having judiciously posed the head, the last thing to be attended to is the expression, and this is the most important of all, and requires tact as well as knowledge. Some put on a vacant stare, others compress their lips, fix their eyes, hold their breath, and look as though they were undergoing an operation. Tell them to smile, and they look idiotic; therefore I say it is here that *tact* is required, and this, of all things, is the most difficult to impart to others. There are some simple directions, however, which can be easily followed. Having informed the sitter that the eyes not only may, but should be winked as often as convenient, see that the lips are closed without being compressed. Sometimes, with a bright, expressive female face, the lips may be parted, especially in children, but this is rarely the case. Now, to get the right expression, if sitters put on "the agony look" or "the vacant stare," they must be *talked* to until a bright natural expression is assumed; then, and *not till then*, the plate may be exposed.

Should any think the above directions too precise, I can merely say that my experience has taught me that probable failure will result from the neglect of any one of them.—*Photo. News Almanac.*

THE REVISION OF PRINTS.

BY WILLIAM MAYLAND.

ONE of the most important duties a photographer has to undertake with regard to his finished work is the last one of all—the selection of the impressions that are to be sent out, and the destruction of those which are not up to the standard he has set up for himself. This standard, I need scarcely add, should be the highest, and the higher the aim at perfection, the greater will be the policy of destruction. This is not only, as I have said, one of the most important, but also one of the most difficult duties, and the one, perhaps, which gives the most pain to the photographer. It is not a cheerful pursuit to destroy print after print, and to be

conscious at the same time of the trouble they have given in their preparation, and the many processes they have gone through without damage, to be spoilt, it may be, in the last. It is not pleasant to have to judge and condemn a print that is almost perfect, possessing, maybe, some minute defect, that would be visible only to the most fastidious, but it is better to sit down to this work with a stern determination to do justice without mercy. Where there is a doubt, do not hesitate to reverse the usual order of administering justice, and give it against the accused. There is a merit in being firm in this important matter, and it may perhaps help you, as you are pursuing your work of destruction, if you keep in mind Pope's fine line :—

"The last and greatest art, the art to blot;"

or, in other words, keep nothing that is not perfect.

The selection of a good print being, to a certain extent, a matter of taste, it is difficult to form rules for guidance in judging of its qualities, but it may be useful to mention a few definite defects for which a careful photographer should destroy proofs.

All finished prints should pass under the eyes of the principal or a responsible manager, and if each order, when completed, be laid out side by side, any deviation in colour, vignetting, &c., can be more readily detected than could possibly be the case by looking through a packet of mixed prints. As illustrative specimens, and because, from their delicacy, they are more liable to small but inadmissible defects than other photographs, we will take a parcel of mounted vignettes, and put them through the ordeal, premising that those prints possessing evident and gross defects have already been destroyed before the remainder of the batch arrived in the mounting room.

One of the first things calling for attentive search should be such iron spots as, from their minuteness, may have escaped notice. They may be considered the *bêtes noir* of all photographic papers; and though they at times proceed from other sources, they generally owe their origin to the manufacturers. Pre-

suming the parcel to have been carefully gone over prior to sensitizing, the presence of this too fertile cause of annoyance in the finished product should be still further lessened by a close observation of each piece of sensitized paper by transmitted, as well as by reflected, light, before placing it on the negative. Even this will not ensure immunity. The paper may be perfectly free, but the opening and shutting of the frames, in the necessary examination of the progress of printing, produces sufficient attrition of the hinges or springs to create a fine metallic powder, very difficult to keep from the photograph or pads. This in summer is readily blown or brushed away, but in winter these spots are more frequently noticed, the damp causing them to adhere with the greatest persistence. *Mem.*—Slightly wax or grease the hinges.

A small spot on a finished card, if not imbedded too deeply in the paper, may be removed by the fine point of a knife or needle, and when burnished with a tooth or agate stone is rendered all but imperceptible. This is a better and safer plan than hiding it with white paint, which is sure, sooner or later, to oxidize. The tones of the prints should be even throughout. Whilst alluding to colour—considered by many a mere question of taste—I would mention a point not to be altogether lost sight of, namely, that the warmer tones appear to be the most stable. The print I have just taken up is somewhat cold, and consequently poor. It may have been occasioned by either over-toning, excess of acid, or too long immersion in the hypo. See all the baths tested. Another looks dull, is lacking in brilliancy, and seems buried in the paper instead of on the surface. Strengthen the silver bath, shorten the time of floating, dry more rapidly and in an even temperature. The next, and otherwise good, print is spoiled by the unevenness of the vignetting, which appears to have been effected through a round hole, thereby surrounding the head with a dark glory, whilst the body, having been left to take its chance of existence, puts in a very shadowy and irregular appearance. A proper

vignette is too well known to need description here. A fourth, I notice, is marred by the bad mounting, and nothing is more unsightly than this. The print should be placed on the card with scrupulous exactitude. The colour, in touching out some prints, may be badly matched, or laid on too heavily. *Mem.*—For all albumenized work use the brush as dry as possible. The next, an excellent example of a perfect proof, admirably printed, vigorous, yet delicate, beautiful in tone, exquisite in gradation of vignetting, mounted with care, not a fault to be discerned. Stay; what is this on the extreme edge of the vignette? A small white spot the toucher has forgotten to cover. I will myself rectify the neglect. Approaching nearer the window for better light, I discover that it is of far more consequence than any or all of the defects already enumerated. Its faint yellowish tinge bespeaks the presence of a dreaded foe; there is no blinking it: hypo. It is in all probability due to a minute air-bubble, which, attaching itself with pertinacity to the print whilst in this bath, has prevented perfect fixation; and, being on that portion of the photograph where the vignette merges into plain paper, has hitherto escaped observation. Moreover, the decomposing action may have been accelerated by the material used in mounting, if not in the card itself. This proves the necessity of examining all prints in the best possible daylight. Never trust to gas for this purpose. The blemish in question would have passed unchallenged by such false illumination. There! No attempt to cover it, small though it be; it is doomed to instant destruction.

The subject of this paper might be pursued to greater length, but my main object is to call attention to defects I have at times observed, which, from the absence of this most necessary supervision, have occasioned the condemnation of much good work at the hands of those to whom this duty should never be delegated—your customers.—*Photo. News Almanac.*

WASH your hands after taking one picture, before commencing another.

WANTS.

BY DAVID BACHRACH, JR.,

[Continued from July 1873.]

THE want of uniformity in collodion is one of the greatest evils the operator has to contend with. The collodion is the most important of all our solutions, for it is the base and foundation of photography, and reliability is absolutely necessary.

The want of uniformity can be only overcome by having some thoroughly scientific chemist make a specialty of the manufacture of collodion. This should only be undertaken by some one who is familiar with practically applied chemistry generally, and the manufacture of Pyroxyline especially. This should be made by some strongly tested formula with acids *always of the same specific gravity and temperature.*

This subject is so important that it cannot be dwelt upon too much, for as collodion is the base of photography, pyroxyline is the essential part of collodion. Poor pyroxyline will never under any circumstances make good collodion.

The chemist should also manufacture alcohol and ether as concentrated and pure as possible. The same rule need not apply to the excitants except that they should be pure and of *uniform quality* as regards the *water of crystallization retained in them*, in order that the same results should always be yielded by the same quantity.

He should keep on hand three or four different kinds of collodions (publishing the formula of each) in order that photographers might take their choice. Some should contain an excess of the alkaline iodides and others of those having a metallic base. One kind should be made especially for copies to give pure blacks and whites. Then a large stock of *plain Collodion* of uniform quality should always be kept on hand ready to be sensitized as ordered.

All these articles being of a uniform quality, the photographer could then rely to some extent upon making equal and clean work.

Any good chemist taking this in hand and making a specialty of this and a few other photographic chemicals, would have his head and hands full in a short time.

If of the right stamp a brilliant success awaits him, if not he will fail utterly. This is a field that is certainly open. If I possessed the requisite knowledge I would not hesitate a moment in trying such an enterprise, as it is a "Want."

No one who is not a chemist in every sense of the word can come up to the requirements in this case. There is not one photographer in a dozen who would think of making his collodion, could a thoroughly reliable manufactured article be obtained, especially if *they would know what they were getting.*

Under the present system the makers of collodion are totally ignorant of the nature of the materials used, if they are adapted to each other, or if the pyroxyline suits the sensitizers used. In fact, it is simply guess work. But absolute certainty in this matter can be obtained, and one chance of failure, and no slight one, thus be removed.

The matter of chemical and mechanical manipulation should be put out of the way of all chance, so as to require no effort of the mind whatever; thus allowing more time and thought to the higher studies connected with our profession.

If we cannot reach perfection let us aim for it, especially in those directions where it seems nearest possibility. The writer has said in a former article that chemistry is an exact science and must therefore yield exact results. The way has been pointed out, in one direction at least, to obtain them.

In England this is done and photographers there do not trouble themselves about collodions. From the statement of several leading operators abroad I see that they always buy their collodion from the dealers, while the contrary is the case here, all the large establishments make their own collodion and waste a good deal each year. That there are good collodions for sale is a fact; but that you can always rely upon them is a fancy.

The majority of them being made to keep

a long time must necessarily, for many subjects, lack sensitiveness and detail on account of the large preponderance of cadmium and the metallic salts used. Now with the arrangement here proposed, where a large stock of uniformly good plain collodion is always on hand, ready to be sensitized by any of the good formulas, either for immediate use or for the purpose of ripening in a certain time, a photographer could get collodion always reliable suited to any light or climate. It will be found with a collodion giving an even film where all ingredients harmonize, that the bath will not so quickly give unsatisfactory results, the half of the streaks and other marks would not occur with such a collodion. *Good results depend upon good collodion.*

AN UNIVERSAL ADAPTER FOR LENSES.

BY FRED. R. WINDOW.

ALL professional photographers have probably experienced the great inconvenience of the usual method employed by opticians for adapting several lenses of different diameters to one camera. This is mostly effected by screwing on to the smaller lenses a metal ring, the outside edge of which itself screws into the flange of the largest lens to be used, which is fastened upon the camera front. Each lens of a different size must have its own metal ring, or adapter, all of them fitting into the same largest flange. In the hurry of business it is a constant annoyance, when a change of lens is necessary, to use these adapters, because the threads of large screws are at best very difficult to fit; and from frequent, and often not too careful use, they get damaged, and are very troublesome.

The method I employ is not new, but it is very simple and convenient, and as it may not be known to many readers of the *Year-Book*, a description of it will, perhaps, be useful to some.

I mount the flange of my largest lens that is likely to be used in the cameras, where other lenses are also fitted upon a slide of wood half an inch thick, just sufficient in

height to carry the flange, and as wide as the smallest camera that any of the lenses are suited for. The top of this slide is bevelled off from the front towards the back; the bottom is left square. I now make as many more precisely similar wooden slides as I have lenses, and screwing their several flanges one upon each slide, in each case cutting the hole for the lens, I have now each of my lenses mounted on a wooden slide, all of the same dimensions and shape.

It remains to furnish a means of easily fixing this slide upon all the cameras. This is effected by screwing upon each camera two fillets of wood horizontally, one above and the other below the hole for the lens, just sufficiently wide apart to receive the slide between them; the upper fillet being bevelled off from the back towards the front, and the lower fillet left square, with a button in the centre. The aperture for the lens must, of course, be made sufficiently large to receive the largest lens that is to be employed.

The lenses are put in from the front, slipping the bevel of the slide under the counter bevel on the wooden fillet, and fixing the whole by simply turning the button at the bottom.

By this means any lens in an establishment, however numerous they may be, or however differing in dimensions, can be fitted on to any camera in a few seconds; and I think, frequently, much loss of temper as well as loss of time, will be spared.—*Year-Book Photography*.

Mounting and Mounting Materials.

BY J. G. TUNNY.

THERE is nothing so annoying in the whole photographic business as to find, after all the care and attention which have been bestowed upon our pictures, that they are often much impaired in beauty from the way in which they are mounted. It may be sometimes carelessness in the mounter, but the principal cause lies in the inherent defects of the mounting material.

Flour paste is very seldom used now, but if any still adhere to it, they should at once abandon it, as it so soon passes into the sour or acid condition, and the fading principle is at once set up.

Starch paste has many of the properties of the flour paste, but is more universally used, and therefore the greater need of care being taken that it be never used after the day on which it is made, if made in the ordinary way. If to every ounce of starch powder there be added one ounce of methyl spirit, and three drops of pure carbolic acid, the keeping qualities of the paste are prolonged indefinitely; the spirit and carbolic acid to be added when the paste is little more than lukewarm; but the material I am about to describe has advantages which neither of the others possesses: Take one ounce and three-quarters best Bermuda arrowroot, and eighty grains sheet gelatine, or best Russian glue; put the arrowroot into a small pan, and add one ounce of water; mix it thoroughly up with a spoon, or the ordinary mounting brush, until it is like a thick cream, then add fourteen ounces of water, and the gelatine broken into small fragments. Boil for four or five minutes, set it aside until partially cold, then add one ounce methyl spirit, and six drops of pure carbolic acid. Be very particular in adding the spirit in a gentle stream, stirring rapidly all the time.

You have now fifteen ounces of the best mounting material you have ever used.

Keep it in a corked stocked bottle, and take out as much as may be required for the time into a gallipot, work it up nicely with the brush, and you will have a material as smooth as cream, without lumps or grit, and which will not decompose.—*Year Book of Photography*.

ON THE PRACTICAL THEORY OF TONING.

BY FRANCIS G. ELIOT.

THE subject of successful toning would still seem not to be exhausted if we observe the numerous receipts that are constantly

sent to the journals, each new one consisting of some novel salt to be added to the gold, and which is thought by its author to be the panacea for all difficulties; or, others again, from having slightly altered the proportions of old receipts, and which have proved the right thing with them, fancy all others must be wrong. This is surely enough to puzzle any one commencing printing.

For instance, to take last year's ALMANAC, we find three receipts, by practical men: the first, on page 33, by Elbert Anderson; the second, on page 36, by Dr. Williams; and the third, by Mr. Syrus Tully, on page 91. Now all these use the chemicals—acetate of soda added to the chloride of gold; yet the first uses only eight grains to the grain of gold; the second, twenty-four grains; and the third no less than eighty grains to each grain of chloride of gold. Possibly, if the before-named beginner were to ask three of his photographic friends for advice, one would say the first receipt is right, and the others of no use; another would say the same of the second, and his other friend the same of the third, which would only puzzle his brains more than ever; yet we cannot doubt that each of these receipts answers perfectly with its author. If we examine into them we shall find there is only one of the three that gives some definition to exactness in the quality of the ingredients: namely, that by E. Anderson, who says *neutral* chloride of gold; both the others use no doubt *acid* chloride of gold, and this it is that leads to so many troubles and difficulties—the uncertainty of the amount of acid in the salt of gold. To show that this strongly affects the results, I carefully tried Mr. S. Tully's receipt with my own chloride of gold, which I always make myself and keep neutral; my own proportion of salts, which I have used for a length of time, being exactly similar to E. Anderson's, and which tones up well in fifteen or twenty minutes a deep purple or black. After keeping the prints in the gold bath of S. Tully's proportions for full an hour, coaxing and heating to make them change colour, which they refused to do, I

finally left them all night, when a slight inclination of colour appeared in the morning, which totally departed in the hypo, and was not recovered upon drying. The question now arises, how was it that Mr. Tully failed in toning until he had made his silver bath alkaline? The answer which can be easily deduced from the above is, that he had got hold of a very acid sample of salt of gold, and his failure was from not having a sufficient corrective. Of course a dirty silver bath is a hindrance to toning, but if it is acid, and the gold bath not alkaline enough, toning properly is next to an impossibility. The great difficulty a beginner has, is in not knowing whether his gold bath is not alkaline enough, or too alkaline; the appearance to an unpractised eye is very similar. Both refuse to take any degree of purple, but the difference is, that the bath not alkaline enough gives a dirty, seedy brown, inclined to mealiness, with loss of vigour; while a too alkaline gives a rich red brown, as if the print had been too short a time in the bath.

To sum up, the most practical way of toning is to first neutralize the salt of gold solution with an insoluble salt, such as either powdered chalk or calcined magnesia (which latter I prefer), then, after settling, pour off, and add eight grains of acetate of soda to each grain of chloride of gold, and after diluting, use at a temperature not higher than 80° Fahr. By this means we need not experiment or use test paper upon every fresh batch of chloride of gold.—1874 *Year-Book of Photography*.

A Substitute for Albumen as a Preliminary Coating.

BY J. G. TUNNY.

EVERY one who has experienced the transition from silk handkerchief and chamois leather scrubbing and rubbing, to get their photographic glass plates clean, to the simple preliminary coating of albumen, will be very loath to go back to the former method, even with all the conjured-up drawbacks of the latter.

Without entering into a discussion of all the objections taken to the use of albumen, every one must admit that, if its influence upon the nitrate bath could be prevented, its advantages would outweigh all other considerations. This I have not been successful in accomplishing; but I have found a substitute which has every good quality the albumen possesses, and has none of its evil results.

After the new plate or glass has been subjected to a bath composed of nitric acid and water (one ounce nitric acid to twelve ounces water) for a few minutes, the surface is well rubbed with a linen pad made in the following manner: Take a long strip of linen about three or four inches broad; roll it tightly round a pencil till it has a diameter of about one and a-half inches; tie it tightly with a cord, draw out the pencil, and cut the end of the roll square. You have now a glass cleaner which will save the fingers, and prove a most effective agent in cleaning the plate.

The plate or glass having been well rubbed, rinse it thoroughly below the tap, and then it will be ready for the following substratum:

Sheet gelatine	75 grains
Water	60 ounces
Ammonia liquid.....	$\frac{1}{2}$ ounce
Alcohol	1 ounce

The gelatine had better be soaked in cold water for a few hours, and then as much boiling water added as will dissolve it. Care must be taken, however, that the gelatine be not in excess of the quantity indicated. Filter as much into a lipped measure as may be required.

Take the glass, hold it horizontally, rest the lip of the measure on the corner of the glass, flow the fluid over the plate without lifting the lip of the measure from its contact with the glass; this secures immunity from air-bells. Let the fluid now be run off at the opposite corner, and tilt the glass so that the last drops may run round the four edges of the plate. This is necessary, as the edge has sometimes a tendency not to take kindly with the fluid.

As each glass is coated, place it in the rack. After they have been drained a short time, if they are required for immediate use they can be dried off at the fire, or be left spontaneously to do so.

The surface has all the appearance of albumen, but is not so easily affected by damp. I have used this method for such a sufficient period as to confidently recommend it to all. If the plates are old and have been varnished the following method is most expeditious and best of any I have tried. To remove the old coatings place plate after plate in a bath of methylated spirit seven ounces, nitric acid one ounce, and in about ten minutes the whole film leaves the glass in one sheet. Rinse the glass under the tap, apply the gelatine substratum, and you have a glass as easily prepared and clean as if it were a new one.—Avoid strong boiling solutions of soda or potash, more especially with patent plate, as they attack the surface and leave innumerable stains that no other means will remove.

I am indebted to Mr. Keith, of Liverpool, for the above method of cleaning the old plates. The advantages of the gelatine substratum cannot be over-estimated when applied to opal glass for collodio-chloride pictures. The presence of albumen, in some way not easily explained, sets up an action which, in a very short time, destroys the beauty of the finished picture, while the gelatine seems to be quite inert, and, at the same time, secures cleanliness and perfect adhesion to the surface, both being absolutely essential to this class of work.—*Photographic News Almanac.*

Doings of Photographic Societies.

GERMAN PHOTOGRAPHER'S ASSOCIATION NEW YORK.

Newton's Washing Process.—When Mr. Newton over a year ago published his process of removing the hyposulphate of soda in the prints with acetate of lead a committee was appointed to test this method thoroughly. Said committee reported at next meeting,

that the prints were indeed free from all hypo, but that the tone changed a little from brown to blue. At the same time fears were expressed, that the new chemical combination would in time injure the prints. This has proved now to be only too true. The undersigned, who was chairman of the aforesaid committee, subjected at that time several prints out of one day's printing to the acetate of lead washing and kept these together with other prints of the same lot, but washed in the usual manner. At the last January monthly meeting these prints were exhibited, and showed that those treated with acetate of lead were yellow and very much faded, whereas the others had lost nothing of their original brilliancy. The meeting thought it very desirable if other societies or individual photographers would publish their experience in this matter.

Air Bubbles on Albumen after Fixing:—

Mr. E. Krueger called the attention of the meeting to the minutes of the Berlin society for promotion of photography as published in the "Mittheilungen." Our Berlin friends suggest the addition of alcohol, ether etc., to the hypo bath for preventing those bubbles, but nobody there seems to think of the old and sure remedy of putting the prints in a strong solution of common salt after they are fixed. This has besides the other advantage, that prints treated in this manner lose their hypo more readily in the washing. If bubbles should show already in the hypo during fixing, then a weaker bath is desirable.

*Causes for Fading of Pictures:—*Quite a discussion sprang up, whether light or air are the more damaging factors for causing pictures to turn yellow or fade. Numerous instances were related, where pictures excluded from all light, turned yellow, and others which were exposed did not, and vice versa. Several members promise to make extensive experiments in the hope of solving this problem, and it was suggested to call the attention of the numerous photographer's associations to this subject in order to get reliable facts from all quarters.

EDWARD BOETCHNER, Cor. Sec.

BOSTON SOCIETY.

The regular monthly meeting of the Boston Photographic Association was held at Black Studio, Friday evening February 6th, Vice President Foss in the chair. A good attendance and much interest was manifested. After some discussion on various topics the society proceeded to the election of officers for the ensuing year. E. J. Foss was raised to the Presidency, with R. T. Bowers of Lynn, Vice. Chas. H. Danforth, Secretary, and E. F. Smith re-elected Treasurer. The Treasurer made a very elaborate report showing the standing and giving the gratifying news that the society had in the Treasury nearly one hundred dollars. *Every bill paid* and more than two hundred dollars due the society.

The meetings during the last year were well attended and interesting, in the meantime we have added about a dozen new members.

Here I would like to say a word in favor of the manner our retiring President has conducted the meetings, and its results.

Our Society has been in existence some six years, and we have had as many good presidents, but it was left to Mr. Black to inaugurate the *free* and *easy* system of carrying on our meetings.

I can't say we have been a strictly parliamentary body for the past year, far from it, and perhaps just a little too far, but all reformers must go a little farther, than they expect their followers to reach in order that they may be fully impressed.

Photographers are not *all* orators, but few of us; the very nature of the business requires silence, and we make our money by covering our heads and winking to our customers through a ground glass window. Hence our modesty.

The very thought of making a *Virgin* speech before a society is nearly enough to make one take cyanide.

All this fear of speechifying Mr. Black has done away with by the conversational manner with which he has conducted the meetings. And now our meetings are more like a Methodist Prayer meeting; every one has

a word and a universal amen, constantly coming from all sides.

This may not be strictly parliamentary or even dignified, but I would advise all societies to try it. Probably few Executive Committees do their duty from the fact they rarely realize the importance of their position. This has been the case in our society. We hope for more from T. N. Philips, R. B. Wilson and D. Burrell this year. Mr. Black upon going out of office made quite a lengthy speech urging the closest attention to art and its principles, the importance of art instructions, and went so far as to offer several lectures from learned men for the benefit of our society. A vote of thanks was given to the retiring officers and many were the thanks Mr. Black received for his good and successful management the past year.

At our next meeting we expect to be entertained by some of our distinguished friends of New York. E. J.

Changes in Photographic Fashions.

BY A. J. W.

It appears to me as if photography were drifting more and more out of what may be called the peculiarly chemical period, wherein artistic and mechanical aids other than those strictly in the rule of necessity were not merely ignored but scouted at. On the one hand, it is developing into large manufacturing businesses which produce upon vast scales, and by the aid of mechanism of every kind applicable; and, on the other, it is picking up more and more the *role* of the artist proper, calling in aids of fancy and taste which in former years only the very few dreamt of.

Upon the former of these divisions it would not be profitable for me to dwell; but upon the latter it may be not altogether useless to say a word, for on the proper appreciation of this new fact in photography the success or failure of its practitioners depends. A man cannot now-a-days hope to do a fine business with merely his camera and lens and a fine light, even with a spice of manipulative skill

and taste thrown in. The photographer who would succeed must now do so by other means. Whether it be for good or ill, taste is changing, and all sorts of means are now in vogue for adding to nature or subtracting, as the case may be, in ways photography—that honest art—knows nothing of.

This is a state of things which may come to bear hardly upon the smaller artists if they do not find means to meet the new feeling. It may possibly be but a passing fashion; but while it lasts, among the vulgar at least, he who flatters most adroitly is likeliest to bear away the most marks of favour. It would have proved much harder than it is likely to do, however, had there been no development of that wondrous division of labour which has been in nothing so sudden and so complete as in photography. Whatever the public demands any photographer may be able to supply, because specialists, who can do what is wanted better than one whose hand has to turn to many things ever can, are easily accessible to all. This notable thing is not half enough borne in mind by photographers. A man sees his rival producing enlargements, say, that look to him merely hopelessly fine, and he sets to work to try and do something equally good with appliances probably of the crudest. He fails, and grows hopeless; he is beaten. But that rival or neighbour very likely never made these enlargements at all. They were made by some one or other whose business it is to make such. All he did was to take as fine a small negative as he could, and that feat is still within everybody's reach who is willing to try and try hard. It may, indeed, be that many do their own work throughout, and strive to cater to each new whim; but what is needful to remember is that no one need stick if he cannot. There are specialists who will do it just as well or better for every man who can take a decent negative. So with modelling, as it is called—a fashion that the lower ranks of photographers have not paid half sufficient attention to.

These specialists are really great helps to the perfection of the art—a somewhat me-

chanical perfection it may be, still perfection of a kind—and unless a photographer feels that he has the skill and the means to enable him to excel them he is wise not to try. As I have remarked, too, fashions change, and a too feverish desire to follow the newest fashions, all for one's self, is wasteful, if not ruinous. One cannot always tell what new fancy is likely to rage, or what is worth favour just at first sight. Hence it were well, when recipes for producing the marvellous are brought before photographers, if they treated the originators of such for a time as specialists. Never buy a new fancy—the right of working a new dodge, however taking it may be. Say in effect to the inventor—"You shall do the work for me until I see how it takes, and, if it take well, I will buy." Too often, with a singular adaptation to human passions, "licences" for all sorts of absurd practices get disposed of in great numbers, because each one fears that he may be cut out by his neighbour. But, were there more of a stick-together feeling among photographers, that need not be; and more is lost now because that is not so than any amount of outbuying each other to enrich the quacks has ever gained. Photographic societies fail utterly of their work in this respect, and do so because their members are so feebly animated with a "clubable" spirit.

The drift of things may change; tastes prove capricious, as they have ever done; and the question for the photographer ought to be always—"How can I meet this requirement at a small outlay?" As a rule, the specialist offers the best solution of the question; at least at the start, till the way has been felt and one's footing tested.—*British Journal Almanac.*

On the Treatment of the Silver Printing Baths.

BY CHARLES WALDACK (Cincinnati.)

An editorial article on *Cleaning Printing Baths* in THE BRITISH JOURNAL OF PHOTOGRAPHY, Oct. 31, 1873, suggests to me the

thought of making a few remarks on that subject.

In time past the discolouration of the silver solution for printing used to be one of my great troubles. A few sheets of some kinds of albumenised paper used to colour the bath very red; other kinds produced this to a less degree. Some kinds of salted papers prepared with a starchy matter produced discolouration by floating one sheet. The more or less tendency to discolouration I attributed to the more or less stale condition of the albumen. What the starchy substances were I cannot tell, but I suppose the paper in question was prepared with arrow root. Gelatine produces a discolouration very difficult to remove except with permanganate of potash. Kaolin I had given up long ago, and used, instead, chloride of silver, or heat and light. Permanganate of potash I tried as soon as the suggestion had been made, and found it removed the colour without producing a precipitate in a bath which had been used some time, and on that account I was somewhat reluctant in its use.

I do not know what suggested me to add ammonia; but from the moment I began to use it all my troubles were over, and I now can prepare fifty or sixty sheets of paper and have my bath just as clean at the end as it was when I began. Ammonia does not produce a precipitate in a solution which has been used some time. It is important that the bath should be kept up to the proper strength (forty or fifty grains); for the weaker the bath the greater the tendency to dissolve the albumen. Weak baths give a soft albumen surface, easily injured in the washing, and of a dull appearance when dry.

When a new bath is made add about half an-ounce of ammonia to the gallon. The precipitate of oxide of silver is left on the film, and will dissolve when the bath is filtered again after it has been used for ten or twelve sheets. If at any time discolouration should appear again look to the strength of your solution, and use a few drops of ammonia. The ammonia added to the printing bath produces to a more or less degree the

effect of fuming, according to the quality which is used.

How or why the addition of ammonia prevents discolouration I am unable to tell. That it does not prevent the dissolving of organic matter was proved to me by the following occurrence: Wishing to practically test the exact amount of silver taken up by a sheet of paper I made a new bath, and submitted the old one to the following course of treatment. This old bath was perfectly clear, but, wishing to test it for organic matter, I added a few drops of a solution of permanganate of potash. No precipitate was produced, and the pink colouration of permanganate disappeared instantly. I then put it in an evaporating dish and set it over a slow fire. In a short time a strong stench, somewhat similar to that of stale albumen, pervaded the room. I kept up the heat until the liquid was reduced to a small quantity without much of a deposit taking place. After this the liquid began to froth up, when a good deal of reduction took place, and the smell became so bad that I removed the dish from the fire and sent the silver to the refiner. This is a conclusive proof to me that the albumen yields to the solution certain kinds of organic matter which are decomposed neither by light nor by permanganate, and which are only completely decomposed by heat when it approaches the fuming point of nitrate of silver.

The photographer, however, need not trouble himself about the presence of this peculiar kind of albuminous matter, for my old bath, which was full of it, worked just as well as the new one I made.

It will not be out of keeping with the rambling account I have given of different matters connected with the printing-bath if I venture to say something about *fuming*, as we call it here in America. I am aware that the practice has not been to any extent adopted in England, and I do not wish to say anything in favour of its general adoption, as it would oblige those who start it to change to some extent the character of their negatives. Fuming gives more contrast, more

vigour. A thin negative will yield a better print on fumed than on unfumed paper; a negative of good density just the contrary. Here, where fuming is generally adopted, many of the negatives which are made would give better prints on unfumed paper. I think it would be an advantage for the printer to divide his negatives into classes and use both methods. Fumed prints are bluish before toning, and, as a consequence, it is more difficult to see when they are toned than unfumed prints, which are red. The fumed prints may, however, be reddened by a small quantity of salt or a few drops of acetic acid added to the last washing water before toning.—*Photo. Daily Companion.*

Reducing the Strength of Negatives.

A method of reducing the strength of negatives proposed by Mr. Letalle promises to be of much value for other purposes than a mere reduction of an over-dense negative, the process being one that may be termed suggestive. He operates as follows in the case of pictures that have been under-exposed and over-developed so as to force out the shadows:—The negative after having undergone all the ordinary operations, is cleaned and washed, remarking the want of harmony or too much opacity. He pours upon it *quant. suff.* of a solution of fifteen grains of chloride of gold in one pint of water. This is poured alternately from the negative into a glass, and from the glass on to the negative till the picture is properly darkened. He then washes and pours on a corner of the negative sufficient nitric acid to cover it. The whole of the silver of the negative is dissolved instantly, and the picture appears to be totally gone. On washing it carefully there is left in the texture of the collodion, however, an image, exceedingly delicate, of reduced gold. This picture can be intensified with the greatest facility by means of sulphate of iron, in the first instance, the picture coming forth with the greatest transparency, the mezzotint more intense, and the high lights remaining transparent; or by means of pyrogallie acid in the second instance, the primitive connection between the mezzotint and the high lights being the same, and the advantage in this case lying in the ability to check the reinforcement on this side of the first, carried on too much.—The golden, delicate picture which remains after the use of the nitric acid seems very excellent for enlargements by the solar camera, on account of its great transparency and delicacy.—*British Journal Almanac.*

FOREIGN NOTES.



AT ONE OF THE "PUBLIC CONFERENCES" OF THE FRENCH ASSOCIATION for the advancement of the Sciences, which was held in August, at Lyons, M. A. Gaudry delivered a lecture on the modern progress of chemical industry. He informed his audience that the amount of sulphuric acid manufactured annually in Europe amounts to 800,000,000 kilos., and would fill a canal 2 metres deep, 10 wide, and 25 to 30 kilometres in length. To yield this acid 800,000 tons of pyrites are yearly consumed. The condensation of the hydrochloric acid liberated in alkali works, the improvements of Mr. Weldon and Mr. Deacon in the manufacture of chlorine, the revolving soda-furnace, the extraction of potash as a secondary product in the manufacture of beet-root-sugar, and the recent improvements in producing paper pulp from wood, are among the principal points touched on in the remainder of this popular and able lecture.—*Quart. Journ. Sci.*

MR. THOMAS SUTTON, England, thus discourses in an interesting review written for the *British Journal of Photography*, "In conclusion may I beg leave to offer a word on behalf of the photographic journalist." Where would photography be now without him? I think it may be summed up in a

word "nowhere." I venture to assert that there is not in the world a really good intelligent photographer, professional or amateur, who is not a regular subscriber to a photographic journal and an earnest reader of the literature of the art."

THERE has been much attention and many honors bestowed upon the German Photographers, since the Vienna Exposition. Our friend Fritz Luckhardt, has been made a Chevalier, &c. The millenium is surely approaching when other arts than that of war interests crowned heads.

THE old Jack O'Lantern "Photography in colors," is being revived again, but the colors thus far have been all in your "eye." But these researches may like the old alchemists in search of the philosopher's stone stumble across many valuable improvements to the art.

RUSSIA, according to the same authority, is ten years behind the age in photography, and even those much praised effects of Denier, are not first class; where sharpness is sacrificed to softness, the results are not so satisfactory as they may appear at first sight.

If calico is dipped for an instant in dilute sulphuric acid, it is rendered water proof; this may be useful in a variety of ways.

RESEARCHES recently made in Italy, prove that the much talked of emission of ozone by plants, is a humbug, hence they have no purifying effect upon the air of a room in which they may be placed.

ALBUMEN paper may be kept sensitized for a very long period perfectly good by being placed between sheets of paper coated with printers ink, the inked side to the back of the paper.

DR. VOGEL says "for the development of photography and for its future progress, we have to look to the newer civilized countries, and America has a decided word to say in the matter."

WHEN India ink will not take nicely on a

print in retouching, add a very little alcohol to the water used, which will cause it to flow nicely.

If you should have a drawing to copy, very yellow and discolored with age, moisten it and hold it over the fumes of burning sulphur, then wash in clear water.

A mixture of lime, clay and oxide of iron, separately calcined, reduced to powder and well combined with water, will always render a leaky wooden vessel tight.

THE commencing the "development" by a weak solution and gradually increasing the strength, is much recommended, especially for out door work.

Miscellaneous, Scientific and Art Notes.

THE EMOTIONS.—Professor Tyndall, while in this country last year, visited the Falls of Niagara, when, reaching the Cave of the Winds by descending Biddle's stairs, he conceived the idea of attempting to pass under the blue waters of Horse Shoe Falls from that point. He found a guide who was willing to make the attempt with him, and together, the next day, they passed through the midst and foam of the roaring cataract, reached the desired point, and returned in safety. In describing his emotions at one point in his perilous journey, he remarks as follows:

"Here my guide sheltered me again, and desired me to look up; I did so and could see, as before, the green gleam of the mighty curve sweeping over the upper ledge, and the fitful plunge of the water as the spray between us and it alternately gathered and disappeared. An eminent friend of mine often speaks to me of the mistake of those physicians who regard man's ailments as chemical, to be met by chemical remedies only. He contends for the psychological element or cure. By agreeable emotions, he says, ner-

vous currents are liberated which stimulate blood, brain, and viscera. The influence rained from ladies' eyes enables my friend to thrive on dishes which would kill him if eaten alone. A sanative effect of the same order I experienced amid the spray and thunder of Niagara. Quickened by the emotions there aroused, the blood sped healthily through the arteries, abolishing introspection, clearing the heart of all bitterness, and enabling one to think with tolerance, if not with tenderness, of the most relentless and unreasonable foe. Apart from its scientific value, and purely as a moral agent, the play, I submit, is worth the candle. My companion knew no more of me than that I enjoyed the wildness; but as I bent in the shelter of his large frame, he said, 'I should like to see you attempting to describe all this.' He rightly thought it indescribable. The name of this gallant fellow was Thomas Conroy."

There is, in this graphic statement of the eminent *savan*, a hint at some truths which, physiologically considered, may be of supreme importance. "By agreeable emotions, ner-

vous currents are liberated which stimulate blood, brain, and viscera." The "emotions" of every living person are unquestionably of more importance to his health, happiness, and well being than most physicians suppose. Agreeable emotions are curative in their influence, when coming to the relief of suffering invalids. Disagreeable emotions produce disease in individuals who, uninfluenced by them, would be in sound health. A dyspeptic who, at his own table, under the influence of depressing emotions, is unable to partake of an ounce of food without subsequent distress and pain, is able, at the table of a friend, under different circumstances, to eat a hearty meal without discomfort. It is a mistake to regard most diseases as resulting from chemical derangements of the system, and it is a mistake to meet a majority of diseases with chemical remedies. We have known physicians who exerted a moral influence over their patients, which gave them a success more gratifying and positive than ever resulted from the administration of any drug.—The mind in its connection with the body exerts a controlling influence; and one of the great secrets in regard to securing health and longevity is to train the emotions so as to keep them outside of the cloud which hangs ever ready to darken our mental and moral horizon.—*Boston Journal of Chem.*

DAQUERREOTYPING, PHOTOGRAPHY, SUNDRAWING, call it what you will, is claimed as an invention of the nineteenth century. Let us look a century preceding, and see what Gyphaigne de la Roche says in his "Gyphantie," published in 1761, on this subject. He is supposed to be addressed by a chief of the Genii in these words:

Thou knowest that the rays of light reflected from different bodies make pictures and paint these bodies on all polished surfaces, as the retina of the eye, on glass and on water. The elementary spirits have sought to fix these transient images; they have compounded a matter, subtle, viscous, and quick to dry and harden, by means of which a picture is formed in a moment.—With this matter they cover a canvas, and

present it to the objects which they wish to paint. The first effect of the canvas is that of a mirror—all the bodies, both near and distant, of which light can bring the image, are seen in it. But this web, by means of its viscous covering, does that which a mirror cannot do, and retains the images. This impression of the images is an affair of the first moment when the web receives them. We take it at once and place it in a dark room, and in an hour afterward the covering is dry, and you have a picture so much the more precious that no art can imitate its truth and no time can injure it. We take, in their purest source—in light itself—the colors which painters obtain from different materials, which time must alter. The precision of the design, the variety of the expression, the gradation of light and shade, the rules of perspective—all these we abandon to Nature, which traces on our canvas images which impose upon the eyes, and make reason to doubt and hesitate.

Whether this description is the detail of an actual experiment or a prevision of science cannot be actually determined, but it is a curious passage.

Gyphaigne, however, was not the first who attempted to fix images formed by the sun's rays. According to a Mr. Jobard, there has been recently found, in Russia, an old book, translated from the German three hundred years ago, which explains very clearly the principles of photography. It is certain that the ancient alchemists were acquainted with our chloride of silver and its property of receiving the impressions of images cast upon it by a glass. So this, therefore, has been apparently in the old time before us.

We can all see the rapid strides photography has made with us from the time it was introduced into our city, some thirty years ago, by Dr. Paul B. Goddard and Robert Cornelius, to the present, when it has almost arrived at perfection.—*Phila. paper.*

ARE THE PLANETS INHABITED?—The *Evening Mail* contains, under the above head, an argument tending to an affirmative answer to this question; but it is founded more on

poetical imagination than on sober truth.—The writer says: "Reasoning from analogy, it is hardly possible that such magnificent worlds as are within telescopic inspection, far surpassing our own in magnitude and celestial beauty, are solitary globes, destitute of living forms organized for enjoying as much as we," etc., and he ends with the statement that the spectroscope has demonstrated that the composition of these worlds as to their metallic resources is essentially like that of the earth; and he asks, finally, "why not in all of her respects?"

The answer to this question is that in all other respects the conditions required for organic life are exceedingly complex. One of them is a temperature between 32° and 100° Fah., and this condition prevails only on two of the planets, the Earth and Mars; all the others are too hot, and their moons are too cold; at least, it is probable that the moons of Jupiter, Saturn, and Uranus are as thoroughly cooled off as our own moon, which is as totally unfit for the existence of organic life as the tops of our Himalayas.—If the spectroscope had not demonstrated that the celestial bodies were compounded of the same elements as our earth, we might perhaps argue that, for other elements unknown to us, another range of temperature might be required for organic life, but the revelations which this admirable instrument has given exclude such a supposition; and as, in connection with the telescope and photometer, it has also taught us that a temperature of 1000° Fah. and upward prevails on all the planets except Mars, the idea that they are all inhabited *at the same time*, is fallacious.

We say *at the same time*; the moon may have been inhabited millions of years ago, when the surface of the earth was as red hot as that of Jupiter is now; and when by further cooling during thousands of centuries our earth will have become desolate, it may be the turn for Jupiter and other planets to become the scene of the most luxurious organic life.

A German saying is: "God works slowly,

because He is eternal." No doubt the universe was not created in a hurry; planets have been revolving around central suns for millions of centuries, and according to unalterable laws have their periods of preparation, disturbance, evolution, organization, then their period of full organic development, and finally of decay; it is already, *a priori*, very unlikely that these different periods of their history should exactly coincide, as the planets differ individually and are placed in different conditions; the larger ones must cool slower than the smaller, and those further from the sun faster than those nearer to that orb. Each has its own individuality, its own history, and will go through the different periods of its destiny in its own time, a time so long that our longest historical period is comparatively a mere instant; while it sweeps in its course through spaces so large that all the empires of our earth are comparatively a mere handful.

USEFUL HINTS.—Why are some things of one color and some another? As every ray of light is composed of all the colors of the rainbow, some things reflect one of these colors and some another.

Why do some things reflect one color and some another? Because the surface is differently constructed, both physically, and chemically, and therefore some things reflect one ray, some two rays and some none.

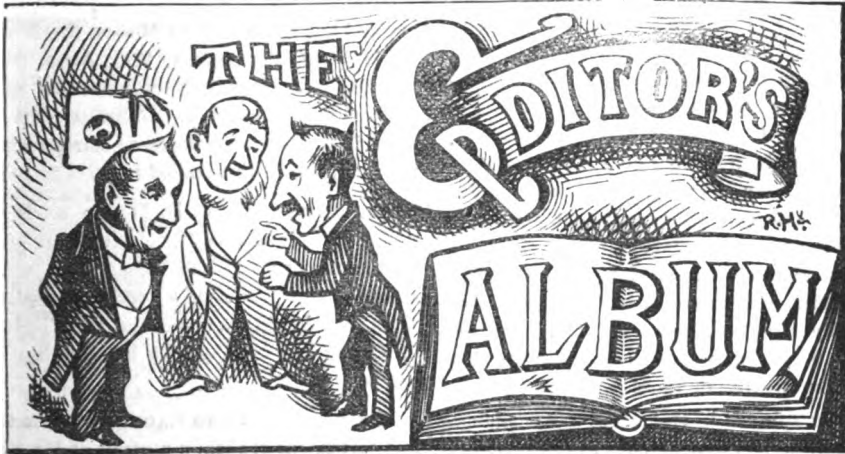
Why is a rose red? Because the surface of a rose absorbs the blue and yellow rays of light, and reflects only the red ones.

Why is a violet blue? Because the surface of the violet absorbs the red and yellow rays of the sun and reflects the blue only.

Why are some things black? Because they absorb all the rays of the light and reflect none.

Why are some things white? Because they absorb none of the rays of light, but reflect them all.

What is the cause of wind? The sun heats the earth, the earth heats the air resting upon it; as the warm air ascends the void is filled up with a rush of cold air to the place, and this rush of air we call wind.



It is peculiarly gratifying to us who labor to a certain extent disinterestedly to receive from our subscribers, the press, and our numerous exchanges, the many kind expressions of congratulation which our January number called forth. With all due modesty we think that to a certain extent these commendations which we daily receive are merited, for never have we presented our "*Friend*" in a better dress, more carefully compiled, or with as much original matter as this year, and the illustrations of the two numbers so far are an index of our intentions throughout the whole year. For our next number we will present a beautiful outdoor scene by that irreproachable "viewist," Mr. Stoddart, and our succeeding numbers will all be graced by gems of art.

We have been making some extensive alterations in the skylight-room in the Photographic Department of our Establishment, which we would like our brethren to examine when they come our way. Finding our light somewhat high we have erected a platform covering the whole of our large skylight room, at considerable expense, but the results are so gratifying that we advise all whose

lights are too far away to "go and do likewise."

We would announce to our subscribers and friends generally that any questions that we can answer, any "fogs" or other chemical difficulties which we can help them out of, we will cheerfully do so through the columns of the *Friend*, or otherwise. We wish to be a *Friend* in need and indeed.

MR. S. L. BUSER, Warren, Ill., makes the following inquiries to which we append a conclusive and satisfactory answer: "I have been trying to investigate the causes of the cracking and roughening of the albumen surface of many of our finest photos. While showing a customer some good prints made upon Morgan's Extra Paper, I noticed wherever they were figured, these fine cracks began to form. I found by moistening the surface the whole of it was transformed into a net work of minute cracks, and no amount of pressure in rolling would do away with it. None but double glossed paper showed this. As I have not found anything in the journals on this subject, I ask for the genera good, &c., "its cause and cure."

"In regard to the cracking of the paper I saw several of our photographers about it. They report that in cold weather it does crack at times, but by adding from 1 to 2 ounces of glycerine to each $\frac{1}{2}$ gallon of silver solution it is entirely obviated. The above remedy is a sure one."

AMONG the finest stereo views we have seen lately are those photographed and published by H. H. Bennett, of Kilbourn city, Wis. In the treatment of rock and mountain scenery these pictures excel. We had no idea that Wisconsin contained such admirable scenery as these pictures portray. The West is an almost unexplored region as far as its beauties are concerned, but such good artistically handled Stereo views as Mr. Bennett has favored us with will do much to extend our knowledge of those "beauteous wilds."

THE spirit of improvement is rife amongst the fraternity and extends to the borders of our land, witness Mr. Joseph Buchtel! "Improvements in Photographic Backgrounds," of which he sends us a picture which explains it at a glance. By the use of a gauze screen before a swinging background any desired shade can be obtained at once. We don't know if Mr. Buchtel intends to sell his patented article or not.

THE catalogue of Stereoscopic views by F. G. Weller, Littleton, N. H., is before us. The excellence of this gentleman's productions are too well known to need comment, but the unique binding of the catalogue will attract notice. It is a handsome cover drawn and photo'd by Mr. Weller, and the photograph actually binds the book. Mr. Weller is an artist in more ways than one.

WE wish to express our thanks to Mr. Edward Boettcher, Corresponding Secretary of the German Photographic Association of New York, for his kindness in forwarding to us the last reports of their meeting, and it is with sincere regret we learn of the miscarriage of the former reports, which would otherwise have appeared in the "*Friend*."

From the Pacific Slope we have many kindly greetings and none more cordial than

is extended to us by Mr. John P. Spooner, Stockton, Cal., who send us some good specimens of work and his own photo. Mr. Spooner's imprint on the card mount is good, and "may the pitcher never be empty."

WE have received from Messrs. Engle and Furlong, of Fernandina, Fla., some good samples of Stereo, which represent that sunny land in full bloom in midwinter. Why should our travellers wander to Europe when Italian skies are outrivalled here.

OUR FRIEND, Mr. C. D. Mosher sends us a fine portrait of himself, which we are glad to place in our "*Album*" along with some others of this gentleman's excellent productions. Mr. Mosher is one of the "*head lights*" of Chicago, as is shown by his lighting of heads.

MESSRS. SITLER AND LAUNEY send us too fine cartes, one of them a portrait of Mr. Sitler, carefully worked and with a fine finish. Shelbyville, Ill., may be proud of having such artists.

WE are indebted to Mr. Foss, President elect of the Boston Photographic Association for the report which appears in this number, for which he will please accept our thanks.

MR. J. P. WHIPPLE, Whitewater, Wis., sends us two good card photos of the two extremes in life, youth and old age, both fair specimens of work.

MR. O. A. DALPH sends us a good card portrait of himself which will grace our "*Album*." Ohio has some good photographers, and Ornell is not behind in the race.

LIGHT-DRUCK or photo-lithography is making rapid strides; these pictures must eventually supersede all other illustrations for books and manufacturers uses. The pictorial present owes an immense deal to photography, both directly and by its influence upon the other arts. Look at the wood cut portrait copied from Photos, and compare them with those of fifteen years ago.

the paper I
ers about it.
does crack
ounces of
olution it
edy is a

is extended to us by Mr. John P. Spooner, Stockton, Cal., who send us some good specimens of work and his own photo. Spooner's imprint on the card mount is a and "may the pitcher never be empty."

We have received from Messrs. Furlong, of Fernandina, Fla., some samples of Stereo, which represent that my land in full bloom in midwinter. We should our travellers wander to Europe in Italian skies are onrivalled here.

OUR FRIEND, Mr. C. D. Mosher sends a fine portrait of himself, which we are glad place in our "Album" along with others of this gentleman's excellent photographs. Mr. Mosher is one of the "hardy" Chicago, as is shown by his photograph.

S. SITLER AND LAUNEY send us one of them a portrait of Mr. Sitler, who worked and with a fine finish. Ill., may be proud of having

debited to Mr. Foss, President of the Photographic Association, which appears in this number. please accept our thanks. E. L. WHITE, Whitewater, Wis., send photos of the two and old age, but

us a good card will grace our photograph-the race.

CONTENTS.

	PAGE		PAGE
"Equal to the Occasion."—FREELANCE.....	65	Notes in Silver Printing—C. J. HOPKINS.....	82
Test for Hyposulphite of Soda.....	66	Photographing the Transit of Venus.....	82
Down with Alcohol—DUNCAN C. DALLAS.....	67	Photographing Below Zero—T. C. ROCHE.....	83
Among the Lions, Daniel, No. 2.....	67	Curious Customers, No. 8—THE AMATEUR.....	84
Failures in Chemical Effects—F. WALLER.....	69	Hints—W. T. WILKINSON.....	85
Another String of Old Beads—J. WERGE.....	70	On the Cause and Cure of Blisters in Albumenized Paper—DR. J. SCHNAUSS.....	86
Our Illustration—The Adirondacks—R. STODDARD.....	71	A Few of Our Sins.....	86
Printing with Salts of Iron.....	75	Securing Short Exposures.....	89
German Photographers' Society, New York.....	76	Water—JULIUS GAUSSOIN.....	91
On Gelatine in the Iron Developer—J. HUGHES.....	78	Permanency in Silver Prints.....	91
Mixing Solutions for Photographic Purposes—J. C. LEAKE.....	79	Foreign Notes.....	91
Specific Gravity; How to Ascertain it, and its Value to Photographers.....	80	Correspondence.....	93
		The Editor's Album.....	95

THE MEN WHO ADVERTISE.

Anthony, E. & H. T. & Co. <i>Photographic Stock and Chromos.</i>	Haworth, J. <i>Photo. Materials.</i>
Anthony, E. & H. T. & Co. <i>Adamantean Plates.</i>	Knell, Geo. <i>Chairs, Lounges, &c.</i>
Anderson, J. A. <i>Photo Apparatus.</i>	Kelsey, C. C. <i>Banner Collodion.</i>
Bachrach & Co. <i>Printers and Copyists.</i>	Kellinger & Co. <i>'Artists' Materials, Chromos, &c.</i>
Baldwin, A. H. <i>Photo. Materials.</i>	Lewis, R. A. <i>Collodion.</i>
Collins, A. M. Son & Co. <i>Cards, Mats, &c.</i>	Moulton, L. V. <i>Photographic Washer.</i>
Cooper, Chas. & Co. <i>Albumen Papers, &c.</i>	M'Collin, Thos. H. <i>Photo. Materials.</i>
Clemons, J. R. <i>Paper and Varnish.</i>	Magee, Jas. F. & Co. <i>Photographic Chemicals.</i>
Cox, John. <i>Printing.</i>	Marcy, L. J. <i>Sciopticons and Magic Lanterns.</i>
Carbutt, John. <i>Photo-Relief Printing Co.</i>	McAllister, T. H. <i>Magic Lanterns, &c.</i>
Fairbank, Murphy & Co. <i>Mouldings, Frames, &c.</i>	Myers & Hedian. <i>Mirrors and Fine Arts.</i>
French & Co. <i>Lenses, Frames, &c.</i>	McCollin, Thos. H., <i>Photographer's Materials.</i>
Fitzgibbons, J. H. <i>Adhesive Picture Mounts.</i>	National Photographic Chemical Co. <i>Shaw's Patent Process.</i>
Fairbanks, Murphy & Co. <i>Passe-Partouts, &c.</i>	Pittman, S. E. <i>Mouldings, Frames, &c.</i>
Gatchell & Hyatt. <i>Stock House.</i>	Pattberg & Bro. <i>Frames, Mats, &c.</i>
Gennert, G. & Co. <i>Albumen Paper.</i>	Phenix Plate Co. <i>Ferrotypes Plates.</i>
Haworth, J. <i>Photographic Materials.</i>	Peasel, Carman. <i>Stereoscopes, &c.</i>
Hirshberg, Bros. & Hollander. <i>Glasses, Frames, &c.</i>	Phillips & Jacobs. <i>Chemicals, &c.</i>
Holmes, William B. & Co. <i>Photographic Stock, &c.</i>	Ryan, D. J. <i>Stock Depot.</i>
Hale, Kilburn & Co. <i>Picture Frames, Mouldings, &c.</i>	Stoddard, S. R. <i>Photographic Views.</i>
Hirshberg, Holland & Co. <i>Photograph and Picture Frames.</i>	Scovill Manufacturing Co. <i>Morrison Lenses.</i>
	Semmendinger, A. <i>Photo Plate Holders.</i>
	Trapp & Munch. <i>Albumen Paper.</i>
	Woodward, D. A. <i>Solar Cameras.</i>
	Walzl, Richard. <i>Photographic Stock, &c.</i>

THE

Photographer's Friend.

Vol. IV.]

MAY, 1874.

[No. 3

Entered according to Act of Congress, in the year 1874, by
RICHARD WALZL,
In the Office of the Librarian of Congress, at Washington.

"EQUAL TO THE OCCASION."

"FREELANCE."

THAT the conditions of working in photography are constantly changing is a fact so well known to all who have had the least practical experience in the art, that it is needless for me in this journal to enlarge on a fact so generally recognized and deplored, but it appears that the natural inference which the thoughtful mind would draw from this and the lesson he would learn, is by no means so commonly profited by. Thus we see men, time and again, committing the same error over which they have wasted a great deal of breath in unclassical profanity; and this, not that they fail to recognize that matters are not quite straight somehow—not that they are ignorant of the cause even—but only that the habit of working in one peculiar way is so strong that they cannot break from it.

Take as examples, best known to most, the vagaries of the negative processes and follow out the several occasions where a man is tried of what sort of stuff he be composed, and see how often most of us are not equal to the occasion.

The collodion, in a thick and thin state, requiring different handling. Thick, it should be flowed over the plate rapidly to prevent that uncomfortable ridgey appearance which is so fatal to the good looks of so many negatives, while a thin collodion calls for the power of keeping it on the plate a sufficient time to enable some of the alcohol and ether to evaporate into thin and empty air to leave the film of sufficient body; but habit—how fatal in the majority of cases!—the operator has one way of flowing the plate, and that style he will stick to if he dies for it.

Then again, with the developer. The thoughtful operator mixes it to suit his bath and modifies it to meet the peculiar character of each plate. The bath being alcoholic, he adds a little alcohol to his developer, and flows accordingly; but does the other character? No! not he. One solution is good enough for him, and one mode of "slinging the developer" is the way he works, and the results—are vile.

Take as one more example—the sensitizing of the plate. It is put into the bath and left there a certain time, be it hot or cold weather, the bath weak or strong, saturated with iodide or overcharged—all the same—

"let her rip." Is it wonderful then that such an one is troubled with many failures?

Method is a good servant, but an awfully exacting master. To acquire habits of cleanliness, precision and the old-fashioned virtues of honesty, punctuality, sobriety and truthfulness, tends to make a man a valuable citizen, an ornament to the state and a comfort to his friends, but in anything like photographic manipulation a blind, unreasoning adherence to a set rule is ruinous to all the work to which he sets his hand, his mind he cannot be said to bring to bear on it.

Avoid then the stereotyped way of working; avoid mannerisms as you would a drink of cyanide, and keep the brain clear, the hands ready—be always equal to the occasion.

Test for Hyposulphite of Soda.

WE are not aware that the following test for hyposulphite of soda in the water employed for completing the washing of silver prints has been published; but, as we have the assurance of a practical printer of lengthened experience as to its reliability, we publish it for the information of our readers.

When the washing of a batch of prints is supposed to be complete, a quantity—say about a *pint*—of the washing water employed is drawn off and placed in a common *white* jar (a clean jelly-pot answering well for the purpose), and a *single drop* of a very strong solution of nitrate of silver—say one hundred grains to the ounce—is dropped into the centre of it. This heavy solution falls through the water, forming chloride of silver with any soluble chloride which may exist in the water, and necessarily a similarly-insoluble precipitate with any other salt present in the water under examination. This precipitate will be produced in a white, opalescent, cloud-like form as the silver solution descends into the liquid, and will remain of this colour if *absolutely* free from hyposulphite. If, however, the *merest trace* of the latter salt be present the opalescent deposit, instead of remaining perfectly white (the absence of any salt, such as chromate of potash, which would cause a

chocolate-coloured precipitate, being assumed, of which the colour of the water would at once furnish evidence), will, in the course of two or three seconds, become blackened in colour, the amount of discolouration depending upon the quantity of hyposulphite remaining the solution—ranging from a faint fawn colour, when the merest trace exists, to an intense black, passing through the intermediate stages of yellow and brown if the amount be considerable.

So delicate is this test that one part of hyposulphite of soda in 100,000 of water is said to be readily detected by it. To those, therefore, who are engaged in the printing of photographs in silver this hint may be interesting and instructive.

All that is necessary to ascertain if a batch of prints be sufficiently washed will be, after having taken care to have them moved freely about in the washing water, to draw off half-a-pint or a pint of it into a clean white jar, and to drop a single drop of strong silver solution into it, taking care not to have the liquid agitated more than can be helped. The silver solution will fall to the bottom of the fluid, causing an opalescent cloud, which, if free from hyposulphite of soda, will remain perfectly white; while, if the slightest trace of hyposulphite be present, it will speedily assume a darkened tint, the depth of colour depending upon the amount present in the water under examination.

Several tests have been proposed for the purpose of detecting hyposulphite of soda in small quantities—such as iodine, which is discoloured by it, and proto-nitrate of mercury, which causes a dense brown precipitate with it; but we are not aware that any test has the delicacy which is possessed by the method now indicated. It also has this recommendation—that the test employed is a solution of a substance always at hand in the laboratory of the photographer, whether his practice be large or small; and it does not add to the number of the chemicals he will have to provide.—*British Journal*.

Of the two errors, under-exposure is worse than over-exposure.

DOWN WITH ALCOHOL!

BY DUNCAN C. DALLAS.

HERE is a cry that for once will suit, contending factions, and may be inscribed on the rival flags of those who drink the liquor and those *Maine*-iacal folks who clamour for permissive bills. "Down with alcohol!" cry the first, as at this festive season with merry shouts they wet their thirsty throats. "Down with alcohol!" cry the others, as with execrations—not profane, let us hope—they cast the accursed thing upon the earth.

Spite of its Delphic ambiguity, it is, nevertheless, a very good cry, and may be taken up with advantage by photographers siding for the nonce with anti-alcoholites, yet not pouring the potent fluid on the earth, but simply doing without it—total abstinence, in fact—in the developer. Let us have no more in our developing formulæ—"alcohol, *quant. suff.*" Why? Because the developer's constitution is much better without his dram.

We have been told that alcohol in the developer is quite inert, and only serves to make the developer flow more easily. Old Booze says the very same thing about alcohol in his stomach, and he is confident he has a more easy flow of spirits. Admitted that the developer flows more easily, but I question its inertness; and, at the risk of being considered a heretic, I believe it is productive of mischief. I have found it a fertile cause of matt stains, and I have had proof positive that it acts as a restrainer, and produces thin images. I, therefore, tried to do without it. I substituted for it sugar, gelatine, glycerine, albumen, and mixtures of these. None of these answered satisfactorily. At last I found the thing under my nose, viz., the best glacial acetic acid. Add this to the developer—and a large quantity is unnecessary—until the developer flows over the film in a smooth wave, without greasiness. It may seem heretical to assert that a developer with best glacial acetic acid sufficient to cause it to flow well, is less restrained than one with "alcohol, *quant. suff.*" By "restrained" I must be understood as referring to density of de-

posit, and not merely keeping shadows clear. I have long discontinued the use of alcohol in the developer, and have found material improvement in the work done.

Whether the days of alcohol as a potable commodity are numbered in this free country I shall not venture to prophesy. In photography its most important use has been in the manufacture of collodion. But are the days of photographic collodion numbered? The bare idea must make "each particular hair" on the heads of the manufacturers "stand erect like quills upon the fretful porcupine." Is gelatine to give collodion its *coup de grace*? Gelatine has been in the ascendant in photography, and now comes gelatino-argento-bromide emulsion to pluck the laurel from the brow of collodion!—Water will take the place of alcohol—total photography! The "weakest brother," the best of "Good Templars," will then be able to dabble in the art without risk of temptation or contamination. Speed the day!—*Pho. Daily Companion*.

AMONG THE LIONS.—Continued.

BY DANIEL NO. 2.

SOMEWHAT heavy in body and dizzy in head, after my Falstaffian repast, I went still onward in pursuit of my mission, and find myself standing gazing confusedly at a few frames which hung in a rather carelessly kept hallway. They were filled with fine photographs, mostly of actresses, in every conceivable costume or *want of it*.

Swinging open the glass door and dashing up the stairway, I am immediately in the reception-room, and in looking around the pleasant place I recognize many pictured faces and forms which have delighted the public "upon the boards."

A young man salutes me with a nervous air, which contrasts oddly with his healthy looking face. It is of course Mr. Wellhow, whose studies are so well known.

After explaining the object of my visit, I am invited to an inspection of the premises, which we make together.

"What do you think of my work, eh? Creating some sensation, is it not, eh? Exhibited in Vienna—prize—world's premium—American photographers—honor, eh?" Thus Mr. Wellhow addressed with many a nervous shake and twist my already bewildered self.

I did not venture a reply. As we walked, he pointed out many a fine photograph of some well known person.

"The chief honor," Mr. Wellhow began, "must of course be the positionists. In a picture the arrangement of light and shade is the secret, eh? Chemical manipulation and all that sort of thing, of course, needs care, eh? but purely mechanical, eh?"

I assented somewhat dubiously to this, and we strolled into the skylight-room, where amidst back-grounds, chairs, head-rests and everything in higgledy-piggledy style, was Mr. Nead Incross, whom every one knows to be a right good fellow, and in his friendly company Mr. Wellhow left me.

"Well, Nead," said I, "old fellow, they say that you dark-room men don't deserve any credit for the improved work; it's all the positionists."

"Have they been filling you with that stuff, too?" Mr. Incross angrily replied. "I'd like to know who produces those soft effects and this white drapery, if I don't. Just let one of those skylight men get into the dark-room and do it; that's all."

"Perhaps," said I, soothingly, "both should share the credit."

"I'll tell you what, Dan," said Nead, "it's the dark-room man who has worked this revolution, and if you want to know the future, look for it in the dark-room."

I laughed a little at this seeming difference of ideas between Mr. Wellhow and Incross, and after a little social talk we adjourned "around the corner," where we took a few views of the past and future through a glass.

Once more I returned to the reception-room to accost Mr. Wellhow; to get his opinion upon the photographic future.

"Well, Dan," said Mr. Wellhow, "the immense fertility of resource which the aver-

age American displays under concatenation of adverse circumstances, eh?"

I clapped my hat upon my head and plunged unsteadily down the stairs, murmuring "soda-water," and the last I saw of him he had twisted a nervous grin out of the side of his mouth.

I meander home with the eyes of watchful guardians of the peace taking note of my wavering footsteps, and I ascend unto my garret chamber while long lines of balusters pass and repass me upon the stairs, and I find the stairway hopelessly intoxicated and resolve to complain to the landlady in the morning, when I find myself in my room, resting a very hot head, which ought to be long to some one else, upon my hand; and it bothers me in looking across the street, for the houses bow and nod to me in an aggravating way. But the scene changes as I sit there, and seems to have gone backward a year or so, and I am visiting another gallery, and as I walk up the tortuous stairs I see upon every side this simple legend, "Bandenn Bro." I walk into the show-room, and an impetuous little man, with an Israelitish nose, greets me. And as he talks, which he does very rapidly, he drums upon the counter, or dusts his clothes, or tweaks his nose in an indescribable way. He turns to his brother, who is behind his desk writing, and says, "Joshua, here is Dan; howdy do, Dan." He speaks this in a gracious and patronizing way which is quite delightful. Mr. Joshua speaks to me leisurely and politely, and I state to them both the object of my visit. Before I am half through, the smaller one interrupts me excitedly—

"The business is going to the d—l. Customers are bowed down to and worshipped"—here he stopped, as a lady asked him if her cartes were ready.

"No, madam," he blusters, "your pictures are not done. Do you suppose, madam, you run this place? Why, if I keep you waiting for your pictures you must wait," and he strutted around in high dudgeon.

"Now, Josiah," said Joshua mildly—and he spoke to the lady in a low tone, and evi-

dently mollified her, much to the ire of his wrathful brother.

"Joshua, you are a fool!" broke out Joshua, as soon as the lady was gone. But Joshua resumed his desk as if nothing had happened.

Mr. Bandenn and myself resumed our colloquy, or rather he did.

"Why, sir," he recommenced, "for sixteen years I have been in the business, and I have never allowed a customer to have their own way. They are knelt to here as they never were in Baltimore, at least by us," and he rattled his keys in his pocket and drew himself up to his most imposing height.

"The business," he went on, "will gradually grow into the hands of a few men of great capabilities, and large work will be the thing, and those men who understand the getting up of artistic work must succeed. We intend to take New York by storm."

He smiles confidently as he says this, and I reach out my hand to wish him good-day, and I grasp nothing—for I have fallen over on the window-sill asleep, and all this is some horrid dream; for my head is still hot and wandering, and I know as I try to think I have not been talking to Mr. Bandenn, for he has folded his wings and returned to his dearly beloved Baltimore long ago, and New York was not "taken," at least not much of it by his camera.

[To be continued.]

Failures in Chemical Effects.

BY F. WALLER, OPERATOR WITH R. WALZL.

ONE of the most prolific causes of harsh negatives is a want of harmony between the bath and collodion. Where the sample of collodion is known to be good and the productions are harsh and unsatisfactory, it will be generally found the bath has not been sufficiently iodized. In making a new bath, as it is a well known fact that a strong solution will dissolve more iodide of silver proportionately, it is a good plan to saturate your solution at a higher gravity than re-

quired for use, and then weakening to the proper standard, the solution will be exactly iodized.

Many will urge that the bath will then soon "kick up" and give pin holes, but careful addition of an uniodized solution at night, after work, will prevent that. And as most every one has found the bath works finest immediately before giving pin holes, the nearer to complete saturation it can be safely worked the better.

Too much cannot be said against the use of strong developer, this being the most ordinary mistake, and the smallest quantity of acid sufficient to flow nicely is all that is necessary. The solution should not be dashed on, nor should the plate be rocked, except in cases where more density is required.

Every one has their pet formula for collodion and one is as good as another, provided the proper relations are maintained between that and other solutions. Excessively iodized collodion I have not worked successfully with a weak bath nor vice versa.

One cause of failure which has given trouble has been undue haste in the flowing of the plate. It should be held nearly horizontal, and kept so. There is no need of hurriedly tilting it back and forth, let it dry to a nicety and immerse in the bath slowly and allow it to remain at least a minute after being apparently coated, by this means the negative is of nearly equal density in all parts, and no streaks from imperfect coating can occur.

One word more as to the rectifying the bath. The iodine should be taken out very rarely, and injudiciously throwing down the iodine with water at each boiling is more apt to give trouble than prevent it. When the bath needs rectifying the simplest plan is to neutralize carefully with ammonia; set in the sun until perfectly clear; boil down one-half; dilute to required standard with pure water; filter and add nitric acid, C. P.; if the bath is to be used at once add considerable, but if it can be allowed to stand a short time, a small quantity will do. If upon trial it

works harsh, but clean, flow the largest plate it will contain and leave it in over night. Sometimes an acid bath will fog; if it should occur in regular streaks running across the plate in the same way the plate was dipped, the bath is not sufficiently iodized. Keep the bath well iodized and it will need no tinkering; keep your collodion but a short time and you will work quickly; keep your developer weak and your negatives will be smooth and of a fine grain.

ANOTHER STRING OF OLD BEADS.

BY J. WERGE.

IN last years ALMANAC I made a promise to give "another string of old beads." It was a rash promise, made in an exultant moment when I had reached the end of my last year's article. The Editor holds me to that promise, and, Shylock like, will have his bond.

How shall I redeem my pledge? My time has been consumed in making experiments that I do not intend to reveal, and my "old saws" have lost their edge. Their teeth are bent or broken, and their points are gone. O! I have it! Beads are little round things without points, of little use singly, but when run on a string they are somewhat ornamental, and sometimes useful in helping to conceal a lean neck or scraggy shoulders. Having little that is new to communicate I shall string a few beads to conceal my lack of ingenuity and invention; and, if I accidentally put on a pearl, do not expect to get more out of the same oyster.

To Secure Permanent Prints.—Wash them in *warm water*, but do not boil them. All sorts of learned reasons have been given concerning the formation of insoluble compounds and their destructive nature and effects; but long years of experience have taught me that the best preventive against *fading* is warm-water washing, either in winter or summer. Since I adopted this plan, many years ago, I have never seen one of my prints fade; while those of others alongside have exhibited symptoms of yellow fever increas-

ing in intensity until they became defunct or melancholy evidences of carelessness. Some may say—"But warm-water washing injures the tone." I say—"Not necessarily so." But, if it do, be bold and honest enough to sacrifice tone for permanency.

To Tint Photographs Quickly, Cheaply, and Delicately.—Pour over the part to be coloured, or the whole of the card, if needed, a coating of crystal varnish. When the benzole has all evaporated the photograph will be brilliant and tacky, and very little, if any, lowered in tone. Then rub on dry colours with a brush, in the manner of colouring glass positives or daguerreotypes. If the work be done with ordinary care and taste the tinted pictures will be as pretty as a highly-finished miniature, and far more like the original than stippled miniatures generally are. Placed in a locket or brooch, or under a piece of mica, the tinting will be sufficiently protected.

To work Cleanly, Quickly, and Certainly.

—Albumenise your plates. It is the easiest thing imaginable to do, and saves a world of trouble and vexation. The films never slip off and never burst up, no matter how far you have to push the development or intensification. The bath is not disordered by long use or multitudinous immersions of such slightly-albumenised plates; and, if you fancy it is, a day's sunning restores it to good health. The easiest and simplest way to albumenise a batch of plates is as follows:—Take the white of one egg, beat it into froth by any means at hand (avoiding iron utensils), mix it with thirty or forty ounces of water. When settled, filter; then take your plates to the sink, or what Scotchmen call "the jawbox," wash each plate well, and while the plate is wet pour the dilute and filtered albumen on the best side of the plate. Pour it on and off, just as you would collodion, but not so carefully. Should any albumen get on the back of the plate remove it with a sponge at once. Mark the back of the plates by scratching them at a corner with a diamond or a patent cutter, and set them to dry on their edges, either in a rack

or on blotting-paper, on a shelf or the floor. Finally, in the morning, or when dry, put them into a plate-box, with the albumenised sides all one way, and you have a stock of clean plates ready for use at any time. In two or three hours as many plates may be prepared as will serve for two or three weeks. Add to this convenience the comforting conviction that your plates are all ready and reliably clean.

If any of the readers of the *ALMANAC* read this without getting a hint, I have cracked my nut without giving them a kernel. But the fault will not be altogether mine; it is partly due to the unrelenting nature of the Editor. However, I beg the reader's pardon if I have not in any way enlightened him, and hope to atone for my temerity by making no more rash promises.—*British Journal Almanac*.

OUR ILLUSTRATION—THE ADIRONDACKS.

BY S. E. STODDARD.

AWAY up in the northern portion of New York is a comparatively unexplored region known as the Adirondack Wilderness.—Clothed with primeval forests, gleaming with a multitude of lakes and ponds and sparkling streams, crowned with many an unnamed mountain peak whose crest has never been pressed by the foot of a white man, it rests to-day a blessing and a joy to the tired throng who come annually from the dusty city to breathe its balsam-laden air, and find and renew their lease of life within its wild depths.

The area of this wilderness is estimated to be something over twenty-five hundred square miles, in which one or two States like Rhode Island or Delaware might be easily lost and baffle search for a considerable time before they were brought to light.

It is properly divided into the *Lake* and *Mountain* regions, the former is on the west, a broad, comparatively level platform, nearly two thousand feet above tide, covered by a dense forest, and intersected by a system of rivers, lakes and streams, a network of silvery highways, over which the sportsman

passes, leaving no track behind. The largest lake is the Raquette, about ten miles its longest way, but with a very irregular shore line estimated at seventy-five miles in extent. Long lake is thirteen miles long and hardly two wide.

From Lake Champlain, on the east, rise up the rugged foot-hills and out-lying shores of the Adirondacks proper, rising one over another to where Mt. Marcy lifts her head 5,838 feet above the ocean. From the summit of this—the highest point in the State, called by the Indians *Tahawus*, (the Cloud Splitter)—the view is grand in the extreme. Around their chief cluster the other great peaks, rising up in their grandeur like ocean billows frozen in their wildest forms, their sides covered with sombre spruce and balsam, save where the avalanche has left its track shining white as snow in the sunlight, the deep trough gleaming here and there with threads of shining silver and little ponds and lakes glistening among the dark foliage like bits of fallen sky.

As the eye follows along up the mountain side, we find that the balsams grow stunted, twisted and gnarled, reaching but two or three feet above the ground, and sending out a few branches along the surface while the dead white tops look like the bleached and upturned roots of trees rather than brothers of the stately monarch who sways in the valley down below; then the hardy lichens and the naked rock, and you stand on the wind-swept summit of the monarch of the Adirondacks.

Countless peaks lift their heads one over another, and you seem to stand on a high point in the centre of a great blue-rimmed basin, the mountain edges on a level with the eye. On the east, over the near mountains runs Lake Champlain, beyond the Green Mountain, and northward the "White Hills" of New Hampshire. A little toward the south is "The Haystack." We can talk to our friends standing on its summit if the atmosphere is suitable, our voices passing over Panther Gorge—probably the wildest pass in the mountains—two thousand feet below.

Swinging around to the south and west and toward the north we see mountains everywhere, and an apparently unbroken forest. Then at the north the little clearing of North Elba, where rests the body of old John Brown, "while his soul goes marching on." Then the peak of "Old Whiteface," and beyond the level Canadas stretching away until lost in the haze of the distance.

Down the sides of many mountains you see the track of the avalanche—no snow and ice, but solid earth and stones and the accumulated vegetable growth of centuries. The most noticeable one is on the west side of Mt. Colder; starting near the summit, it went down to its very base and then rested in Avalanche Lake, cutting it nearly in two by the debris which was deposited. Near the top the furrow ploughed is about ten feet deep and as many wide; at its base about seventy-five feet wide and fifty in depth, with perpendicular sides. It can be followed up nearly to the starting point, but cannot be left without the aid of a ladder or ropes.

Down on the south side of Mt. Marcy is "Summit Water," 4,393 feet above tide, said by Verplanck Colvin (appointed by the State to make a survey of the region and report on the expediency of converting it into a public park,) to be the highest pond source of the Hudson river.

Scattered all over this region are places of entertainment—from the elegantly furnished hotels on the borders to the rude log houses of the interior, but all "hotels," and willing to take in strangers at from \$2.50 per day to \$7.00 per week. Martin's, at the lower Saranac Lake, is the largest; "Pol" Smith's is the most fashionable. "Pol" is a man; his feminine appellation being an abbreviation of Apolus. Some who perhaps, are rather uncertain as to Scripture quotations, have a confused idea of the connection between Paul and Apolus, and so call him *Paul*.

Here the timid deer that fights flies among the lily-pads, finds its representative in the parlors, and the noble buck who crashes through the tangled wild wood is tame compared with those who straddle elegantly over

the billiard tables, drink champagne, and talk horse by the yard.

The avenues of approach radiate to all points of the compass, but the favorite routes are to the mountain region, by way of Lake George from the south, or Westport from the north, and to the lake region via Plattsburgh on Lake Champlain, thence south twenty miles by rail and thirty-eight miles by stage to either Paul Smith's or Martin's, each place being the terminus of the telegraph as well as the stage route. Here boats and guides are taken for the interior. The hotels advertise to supply all the necessaries for a camping expedition if desired, still the entire region can be traversed without necessitating a night's camping, if a bed in a "hotel" is preferred.

A guide furnishes boat, cooking utensils, and does all the work at from \$2.00 to \$2.50 per day, carrying his boat over the different portages, excepting at some of the larger ones, where a cart or sled is provided, and the boat taken over at prices varying from 50 cents to \$1.50, for which the sportsman is expected to pay.

The regulation Adirondack boat is a model of beauty and lightness, about sixteen feet long, narrow, and intended for two, but capable of carrying three men, and weighing when new from sixty to eighty pounds.

When a portage is reached the guide takes the boat, and you are expected and usually willing to carry the guns, oars and other little traps. You see him seize it by the wales, swing it gracefully up over his head, and adjusting the yoke to his neck, step out lightly over the slippery trail, slipping from rock to rock and the roots projecting from the black muck, for in the dense forests the path seldom gets perfectly dry, and the decayed leaves make a soft bottom when travelled over to any extent. You admire him as he starts out, looking like a huge inverted pickle-dish, on a pair of sinewy legs. You will follow in his footsteps and show that you too are a natural woodsman. Your soul swells with conscious freedom, and you snuff in inspiration and black flies by the mouth-

ful, and you gather up the oars and the paddle, guns and fish-rods, and other small fry, and step out lightly after him. You rather like the excitement of springing from rock to rock, for you know that the solid bottom may be anywhere from two inches to two feet below the surface. Watching your feet that they don't get the start of you—for the stones are slippery—and dodging the bushes that scratch your hands and seem inclined to slap you in the face without the slightest provocation; then you find that the oars and things are on a tender part of your shoulder, and you change, only to make it worse, and they have got into the notion somehow of spreading out in different directions and at various angles, and straddling saplings and going on the contrary sides of trees, when you had designed to pass on the other, and you wrench your neck and get a crick in your back in the struggle for the mastery, and at the same time dodging a limb that is making a sweep at you, you set your foot down in a soft place and it goes in out of sight. Of course, you had been expecting that for some time, but still it is something of a surprise. You place the other foot firmly down and make a desperate effort to resurrect the missing one; it comes up with a *thuck* that nearly sends you over on the other side, and you step out suddenly and land on one end of a dead root and the other comes up and swats you in the face with a dipper full of muck, and the traps sprawl about worse than ever, and you look for all the world like a dilapidated umbrella in a chaotic state of openness, with not a thread of canvas on. The chances are that about this time you begin to talk to yourself—it depends very much on how you have been brought up—but you take a grim satisfaction in ploughing along, determined to go through with it at all hazards. You are not as careful as before; the guide is disappearing among the trees ahead; you make a spurt ahead, a couple of trees on opposite sides of the trail seize the oars and they shut up on your aching neck like a pair of shears, a friendly limb lifts your hat and drops it in the mud right where you was

going to put your foot down. You save your hat by over-reaching, which necessitates a rapid back-action movement to regain your equilibrium, in making which you put one foot down on top of the other, and sit down to rest, in all probability right on top of the cause of all your ground and lofty tumbling. It is at such a moment as this when, freed from the thralldom of civilization—in the solemn stillness of the mighty forests—and with a soul attuned to the inspiring harmony of nature, your thoughts wander back to childhood's happy hours, and in the ecstasy of the moment some well remembered passage learned in the Sabbath school comes welling up from your joyous heart—and perhaps it don't. It is best at such times not to let it well too much, you might get slightly mixed, and a disinterested beholder might misconstrue your devotional expressions. At such a time the most a man wants is undemonstrative sympathy; but such events are only the spice which seasons the dish of glorious things served up among the mountains and on the lakes and rivers of the great northern wilderness.

I send you five negatives to select from or use collectively. The one with the sloping side hill and distant mountain-hemmed sheet of water, sprinkled full of little islands, is of Lake George, which, while not properly in the Adirondacks, is on the borders thereof. Another of quiet water, with the man and boat in the foreground, is Long Lake. The one with a fog lifting so that you barely catch the outline of the distant shore, is the same under a state of the atmosphere very common in the mornings of the spring and fall, and I would say that the *fog* there is not of the kind so easily obtained, and so lightly valued by us poor struggling photographers. Another, with the dead trees floating in the foreground and the great round topped mountain on the left, duplicated in the water below, is Indian Pass, a wild gorge through which the trail passes from Lake Henderson to North Elba, under a perpendicular cliff 1319 feet in height. The remaining one is a view of the Great Peaks from the south, the one

running up toward the west from the centre is Mt. Marcy. East of it the cone-like summit of "The Haystack," and farther, the "Gothic Mountains," and other of minor interest, all very unsatisfactory and showing my weakness in attempting to copy the great in Nature when I compare that faint tracery of distant mountain and mists with the magnificent storm-cloud and the grand old peaks over which it gathered, broke and rolled away and left, kissed by the sunshine, clean and bright and strong, and as eternal as the power that made them.

My working formula being of the simplest, is easier taken care of than one more complicated. Lath 45 grains strong to begin with, and worked anywhere from that down to 30. Dissolve the nitrate of silver crystals in river or any soft water; add a little collodion, sun and filter, and it is ready for use. Collodion 10 oz., Alcohol 10 oz., Ether 100 gr., Iod. Am. 20 gr., Brom. Cad. and about 100 gr. cotton.

Developer.—A pint of water to an ounce of Prot. Sulph. iron; Acetic Acid to make it flow evenly; fix in Cyanide of Potassium; redevelop when dry, if necessary, by putting plate in the bath again and developing with iron Sol. as at first.

For mountain work I have a dark box on legs. For ordinary use a cart, tracking same as a wagon, and on it a box large enough to hold all the traps necessary, and resting on light springs. The cart is arranged with a tongue by which to tow it behind any wagon. A foot which swings back when under weigh and an adjustable brace prevents its falling over when at rest.

To work I stand at the back, a wooden flap swings up and out and forms the roof to the two doors which swing outward and stand at right angles with the side; then an inner wooden flap, hollowed out so as to fit the body, falls outward and rests on cleats on the bottom of the side doors. A cloth is then hooked on the top, and hangs down to shut out the light. One bottom corner is also fastened, and I hook the other inside, when I stand with my body in the half circle of the

lower flap, with everything at hand, and as free to work as at an ordinary sink. The door portion is my own invention, (*invention is good, it sounds well*) and the best, for me, that I ever saw—not patented either.

After developing I drop the negative into a large flat copper pail of water, and go ahead with my business. I have two of these pails, one fitting into the other, capable of holding water sufficient to cover a 11x14 negative stood on edge, and the advantage claimed over the old process of washing under a tap is that it saves room and water, and if pressed for time, which is sometimes very valuable, a half-dozen or more can be developed in regular order and left to wash themselves.

[The prints from these interesting views which Mr. Stoddard so graphically describes, were made in the printing department of the National Photographic Emporium, and with the following formula.—Ed.]

Formula for Working H. Extra and Morgan's Albumenized Papers.

Dissolve Nitrate of Silver in pure water until the Hydrometer indicates 45 or 50 grs. to the oz. Then, in a separate bottle, pour one-eighth of this dissolved silver and mix it with the other seven-eighths *after* having dropped in the larger portion, *carefully*, (shaking all the time) sufficient Liquid Ammonia to make it muddy or turbid. While in this condition, continue to drop the Ammonia until just enough is in it to make it perfectly clear again. After mixing the smaller with the larger portion the combined solution will be slightly turbid, or, at least, should be. Add, carefully, a few drops of C. P. Nitric Acid until it is clear and slightly acid. After filtering it, warm the solution perceptibly. Before floating the paper, dry each sheet by heat, and be careful as to the time on the bath—half to one minute is sufficient. If the paper is allowed to remain on the solution longer than required, or dried too slowly, the silver penetrates to the back of the paper, causing, when Rives' paper is used, the markings of iron lines so often seen. If the bath is warm, the paper perfectly dry,

and the floating time about one minute, no trouble, either of blistering or iron markings, will occur. On taking the paper from the solution dry it quickly and thoroughly. Fume about fifteen minutes.

Plain Nitrate of Silver solution, instead of the Ammonia Nitrate, *above*, may be used very successfully.

Toning.—Platinum, in connection with Gold, for toning, is considered a decided improvement by many, the prints showing remarkably clear shadows.

Formula.—The following, among the many Toning Formulas, is preferred by us: Water 32 ounces, Chloride of Sodium 30 grains, Acetate of Soda 60 grains, Neutral Gold 8 grains. Neutralize the Gold with Bicarbonate of Soda or Borax.

Fixing Bath.—Water 6 ounces, Hyposulphate of Soda 1 ounce, Soda Bicarb 6 grains.

Printing with Salts of Iron.

From numerous letters received since our last number was published we perceive that considerable interest is felt in the subject of printing by aid of the salts of iron, and a strong desire is expressed that we should give some further information on this subject. In the present and a subsequent article we shall give a variety of processes which depend upon that action of light upon iron and other bodies to which we alluded last week.

The ferric salts which are most easily decomposable by light are the ammonio-oxalate of iron, the ammonio-tartrate of iron, and the ammonio-citrate of iron. These are known by the more circumlocutory names of the oxalate, tartrate, or citrate of sesquioxide of iron and ammonia, both of which we shall cut short and adopt the simpler term ferric oxalate, tartrate, or citrate. It was with salts of this kind that Herschel's suggestive experiments were made.

Make a ten or twelve-grain solution of ferric oxalate, and with this brush over one side of a sheet of paper, which, after being dried, will keep good for several years, and be always ready for exposure. It is not sufficiently

sensitive to be exposed in the camera, but it makes an extremely sensitive paper for printing upon under a negative. In the best of numerous pictures we have obtained by the method now described the exposure was not carried so far as to show a visible image upon the paper, although the highest lights were slightly browned. The picture keeps as well after exposure as before it, and the development may be proceeded with at any time. To do this all that is required is that a tuft of cotton, a soft sponge, or a camel's-hair brush shall be charged with a solution of ferrid cyanide of potassium, commonly known as the red prussiate of potash, the strength of the solution being of no consequence whatever. A picture in a beautiful blue colour instantly makes its appearance, to fix which nothing more is requisite than an immersion in water for a very short time.

If a picture taken according to the foregoing directions be washed over with a solution of bisulphate of potash, the blue colour becomes intensified.

A greenish picture is secured either by washing the print as originally obtained, with a solution of sulphate of copper, followed by rinsing with water, or by the addition of gum arabic to the solution of ferridcyanide without subsequent washing.

A picture of dark-brown colour results from a wash of nitrate of silver solution; ammonio-nitrate of silver gives a tone of a different character, being greyish-black.

A pale-slaty kind of image is obtained by treating the picture with ammonia.

One can almost anticipate what the effect of a wash of weak chloride of gold solution would be; the characteristic purple colour is at once the result.

Other colours or tones are produced with other agents. But the sensitising agent and the developer may be mixed together previous to the paper being prepared; and in such a case the picture is developed by immersion in water. Dr. Halleur, to whose epitome of the processes of Sir John Herschel we are indebted for the details of some of the reactions above described, gives the following pleasing

experiment, founded upon, if not directly deducible from, the famous communication to the Royal Society :—Dissolve one part by weight of ferric citrate in eleven parts of water, add an equal volume of a saturated cold solution of chloride of mercury, and with this *immediately* wash the paper to be prepared. After being dried the paper will be of a yellowish colour. Expose under a negative until a faint image is visible, and then apply a strong solution of cyanide of potassium, when the picture will be immediately developed. We epitomise another suggestive experiment from the original communication :—If paper be washed by a mixture of solutions of equal strength of ferric citrate and ferrocyanide of potassium, after being dried and exposed an image of a bright blue colour will be developed by simple immersion in water. Wash this image with a solution of protonitrate of mercury, when the picture will apparently be totally obliterated. Now, wash thoroughly in water, so as to remove all the soluble salts, and dry the paper—for, as the *picture* has now been rendered invisible, the latter term cannot be applied to it. If now a hot iron be passed over the paper the picture instantly appears of a brown colour, and curiously enough, it fades away in a few weeks if kept in darkness, but is susceptible of re-vivification by the simple act of again applying heat.

We shall resume this digest in our next, and shall then give the most modern and approved formulæ for the preparation of the various agents required in the production of photographs by the means that have been, or are yet to be, pointed out by us.—*British Journal*.

German Photographer's Society New York.

At the annual election of officers for the ensuing year, commencing March 5th, the following gentlemen were elected unanimously :

MR. W. KURTZ, President—3d term.

" P. F. WEIR, Vice President—2d term.

MR. A. BAUMGARTNER, Rec. Sec.—1st term.

" EDW. BOETTCHER, Cor. Sec.—4th term,

" L. NAGEL, Treasurer—3d term.

" G. GENNERT, Finan. Sec.—1st term.

" A. MARTIN, Librarian—2d term.

" W. TRAPP, Custodian—2d term.

The Secretary's report, after recapitulating the most important subjects brought before the Society during the last year, showed an increase of 16 in the number of members, making the whole number 71, of which 48 are residents of New York city and environs and 23 of other cities.

The Treasurer reports :

Receipts.

To dues paid	\$146 66
" admission fees.....	24 00
" 129 shares paid in.....	258 00
	<hr/>
	\$428 66

Disbursements.

By expenses paid.....	\$408 94
Cash on hand.....	19 72
	<hr/>
	\$428 66

Assets.

Cash on hand.....	\$ 19 72
Deposited in bank.....	150 00
Dues in arrears.....	157 00
General property.....	1,000 00
	<hr/>
	\$1,326 72

Liabilities.

129 shares.....	\$258 00
	<hr/>
	258 00
Balance.....	1,068 72
	<hr/>
	\$1,326 72

The Librarian reported the collection of photographs to number 615 pictures of all sizes and styles. The library contains 200 bound journals and books and 150 unbound journals. The general property was increased further by one large show frame, made expressly for exhibitions, together with a considerable number of frames and passe-partouts—and lastly by a medal, awarded the Association at the last American Institute Fair.

All reports were received with applause and great satisfaction, as showing a flourishing state of affairs and steady progress.

No more royalties for silver-saving patents.

Messrs. Kurtz & Kleinhaus have obtained at the General Patent Office at Washington the following caveat:

Enter a caveat for precipitating metallic gold and silver out of spent photographic solutions by means of galvanic batteries.

When two plates of copper and amalgamated zinc (zinc whose surface has been rubbed over with mercury) are placed in a vessel containing water to which a small quantity of sulphuric acid has been added, so long as they are kept from touching, either within or without the liquid, they remain apparently unaffected. If, however, they be made to touch, bubbles of hydrogen gas are formed in abundance at the copperplate, and their formation continues until the plates are again separated. If the contact be maintained for some time and the plates and liquid be afterwards examined, it is found that the copperplate weighs exactly the same as before, that the zinc plate has lost in weight, and that the liquid contains the lost zinc in solution in the form of sulphate of that metal.

The contact need not be affected by the plates themselves. If wires of copper, or any other conductor of electricity, be soldered to the plates, or fixed to them by binding screws and be made to touch, the changes just mentioned take place as if the plates were in contact. It is not even necessary that the wires be in contact, for if their ends be put into a vessel containing a conducting liquid the same changes occur, though to a diminished extent, the contact being completed through the liquid. The ends of the wires, when so immersed, show strong chemical affinities.

If the conducting liquid were a solution of hyposulphite of silver (photographic fixing solutions) the wire from the zinc becomes coated with the silver of the solution whilst the other attracts its oxygen and sulphuric acid, and wastes away in entering into com-

bination with them. The connecting wires are found, therefore, in actual or virtual combination, to possess very marked chemical properties.

The arrangement just described constitutes a galvanic pair.

For practical work, improvements, to increase the strength of the electric current have been invented, and for the purpose of decomposing the hyposulphite of silver solutions of photographers a Smee's battery would probably be most desirable.

A Smee's battery consists of a carbon plate, with a zinc plate on either side, kept separate from it by slips of wood, the two zinc plates being fastened by a coupling. The plates are set in a glass jar half filled with a solution of 16 parts of water to one part of sulphuric acid. Copper wires being connected with the plates as before described, a small plate of platinum is fixed to the wire of the carbon plate as positive electrode, whilst a strip of some metal (copper) is fastened to the wire from the zinc plates forming the negative electrode. As soon as the electrodes are immersed in the hyposulphite silver solution chemical decomposition immediately ensues; the silver and gold begin to deposit themselves on the negative electrode, the platinum or positive electrode resisting the action of the hyposulphurous acid, hyposulphite of soda in solution is reformed with traces of free chlorine. As soon as the wires are removed from the solution the electric current ceases. A Smee's battery will work for four to eight weeks without any interruption, when it may be found necessary to supply a fresh solution of diluted sulphuric acid and to amalgamate the zinc plates.

Besides the first cost of a battery, which is about \$5, there is no further expense worth mentioning. We claim for this process simplicity and cheapness, inasmuch as it does away with the noxious sulphuret potassium and precipitates the silver and gold in a metallic state, &c., &c., &c.

WM. KURTZ,
JACOB KLEINHAUS,
150 Chatham street.

This caveat the above named gentlemen have turned over to the German Photographic Association, and this Association permits every photographer in the land to use such galvanic batteries for the purpose the caveat was entered for.

EDW. BOETCHER, *Secretary.*

On Gelatine in the Iron Developer.

BY JABEZ HUGHES.

IN these days gelatine seems to be the rising material as the vehicle for photographic usefulness. In printing it has already considerably superseded albumen; for the Autotype, the Woodburytype, the Helio type, and the other kindred Lichtdruck mechanical printing processes, all depend on gelatine. In the bromide-emulsion process gelatine is aiming, and with some hopes of success, to supplant collodion. While it is found so useful in these instances, permit me to recall its value in another, and I hope not altogether forgotten, direction. It may sometimes be as useful to revive an old improvement as to suggest a new one. A few years ago I had a good deal to say in favor of gelatine in the iron developer, and I was by no means the only one who bore testimony to its value. Although we hear little about it now, I remain yet as convinced as I was then of its utility.

That many persons did not find the gelatine so useful as its advocates thought it was, is very true; but this chiefly arose from its being used indiscriminately and indiscreetly. As I see now so many pictures produced from negatives originally very thin and weak, and which in their forced intensity have lost whatever original delicacy they possessed, I feel that there is a need that this useful addition to the iron developer should again be pointed out.

Many individuals have commenced photography since the period I have alluded to, and as those who are ardent students will be readers of the YEAR BOOK, I venture to recall the changed properties that are given to

the iron developer when gelatine is present. Galatine, added to the iron developer, acts mechanically and chemically. By the increased glutinous properties it gives to the solution, it flows more certainly and steadily over the collodion film, so that, not hesitating or flowing in irregular lines, it does not cause the stains and markings it is otherwise prone to. By this means the developer can be poured on more deliberately, and a smaller quantity of solution will be required for the plate; from this cause, the nitrate of silver on the film is less diluted, and a denser image produced. The gelatine acts chemically by restraining the iron from acting with its usual rapidity and violence, so that the silver, in place of being deposited very quickly, is thrown down more slowly. It also causes the silver, instead of being thin, grey, and transparent, to be dense, brown, and more opaque. It also has a tendency to prevent the silver depositing where the light has not acted, thereby keeping the densest and faintest shadows very clear and pure. The extent to which this influence exists will depend on the quantity of gelatine used, and the way it is prepared. The simplest method I should recommend would be to dissolve some gelatine in the proportion of two grains per ounce in water, and to add about a quarter of an ounce of this solution to a twenty-grain iron developer, to which is added the usual proportion of alcohol and acetic acid. If too much gelatine be added, the image will be too dense, or an increased length of exposure will be required. Under all circumstances where, from any cause, the image originally is of a weak, thin and grey, character, the gelatine addition to the developer will certainly cause opacity and vigor; and, if subsequent intensification be used, the silver deposited on the image will be much more dense than usual. The error that most persons fall into in using the gelatine is, in making their negatives too dense. Density, it must be remembered, is as much produced by non-actinic color as by opacity, and when gelatine is used, the image is more chemically opaque than when produced by

the ordinary developer. This must be carefully regarded, otherwise errors will certainly arise, and the developer will be blamed and cast aside for producing negatives too dense. It is the proper use, and not the abuse, of gelatine in the developer that I recommend.—*Year Book of Photography.*

Mixing Solutions for Photographic Purposes.

BY J. C. LEAKE.

THAT there is matter of more importance than meets the eye, at the first glance, in Mr. Warner's paper on the use of hot water in photography, published some weeks ago in these pages, there can be little doubt. We are not at all prepared to accept his statement that the use of hot water will at all times keep us out of it, by rendering all chance of failure impossible, nor to accept his theories without question. Yet it must be granted that he deserves the thanks of all for calling attention to a method of working which has proved so successful in his hands. But the question at once arises, What is the reason of this success? It must be evident to all that Mr. Warner's theory is erroneous, and that the mere boiling of the water does not, as he supposes, eliminate either all the organic matter or free it from oxygen, &c. If boiled for a considerable period—say, half or three-quarters of an hour—"hard water" is freed from carbonic acid, and carbonate of lime, if present, is deposited. In some cases, where the water is very "hard," to do this is, doubtless, an advantage; but in the water as supplied by most of the London companies we have not, in our own practice, found this precaution necessary. Could we depend upon the distilled water supplied by dealers, we should probably employ this for the bath; but, on the whole, our experience has been that for all practical purposes that ordinarily employed for household purposes is sufficiently pure. Of course, there is a slight precipitate when this is mixed with the nitrate of silver,

but this is of no importance (if it be not an advantage), as it can easily be filtered out.

It will, of course, be asked, of what advantage can it be that a precipitate is formed? And we reply, that we think that in fulling, many impurities are carried down by the precipitate, and, consequently, the bath works not only more rapidly, but gives better negatives. One fact, however, is worth many theories, and we can confidently state that our experience has been decidedly in favor of baths made with ordinary water rather than that termed "distilled." What, then, is the real cause of Mr. Warner's success? We believe it to consist simply in this: *that by the use of hot water he makes perfect solutions of his chemicals.* This idea will probably raise a smile with many photographers, but we have facts which we think sufficient to prove the correctness of our theory.

Every one who has worked the collodion transfer process knows that one of the most tiresome and frequent causes of failure is the appearance of small opaque spots during the development. We, too, have had our share of these, and, after a long and useless search for their cause, we found only one source from which they could reasonably be supposed to arise. This was undissolved particles of pyrogallie acid. Now, to test this fact we set aside the ordinary solution, and mixed some by dissolving the acid in hot water. This at once freed us from our trouble, and, naturally enough, we concluded that we had discovered the cause.

But hot water cracks glass bottles and measures, and is otherwise troublesome; so, instead, of this, we employed methylated spirit as a solvent for the acid, and with such perfect success that we have not, since adopting this method, had a single picture which has not been entirely free from this troublesome defect.

These experiments, of course, set us wondering as to the other solutions employed; and, as the result of very many carefully conducted operations, we arrived at the conclusion that many or most of the defects in

our work are caused by an imperfect solution of the chemicals employed.

The remedy is, of course, obvious. We may use hot water for many of our solutions, or adopt other means if we prefer it; but our aim must be to perfectly dissolve every substance which we have to employ.

The plan which we have found to possess many advantages is the following: We make the whole of our solutions in a concentrated form, and, for the sake of simplicity, of such strength as to require diluting with ten times their bulk of water before use. Thus, the silver "stock solution" is made by dissolving 750 grains of silver in two ounces of water; the iron developer, by dissolving 1,000 grains of iron in five ounces of water. The pyrogallic acid solution, either for transfers or redevelopment, is made by dissolving 100 grains each of pyrogallic and citric acid in five ounces of methylated alcohol. To each ounce of these solutions is added, for use, ten ounces of water, and thus we have always at hand a simple, easy, and rapid method of making up as much solution as we require, without the constant trouble of weights and measures. Of course, to the iron developer we must add the required quantity of acetic acid and alcohol, but these are variable in quantity, and no proportions can be given.

The toning bath for prints may also be made in the same manner, and if it does not work better, it is at least, a simple and effective method of mixing, and one which renders the tired and busy photographer less subject to the temptation of employing the "rule of thumb" formula.

Now as to the result. Since we have adopted the above system we have obtained pictures which are absolutely free from pin-holes or spots of any description, while the ease and simplicity of working have been greatly increased. In no case have we found it necessary to filter the developers. If the stock bottles are kept tolerably full, the few few ounces of solution required can be decanted without disturbing the sediment, and, if added to clean water, will be found to be

clear and bright. In making up the stock solutions, either hot or cold water may be employed, but the latter will usually answer perfectly.

The advantages of this method of working we believe to rest in the fact that, on account of the time allowed to elapse between the mixing and use, a perfect solution takes place; and we think, further, that this is all Mr. Warner effects by the use of hot water. In conclusion, we would remark that on no account should the stock solution be used until it has stood at least twenty-four hours, if the full advantage of the system be desired.—*Photo. News.*

Specific Gravity; How to Ascertain it, and its Value to Photographers.

WHAT is specific gravity? A definition of the term cannot be given intelligibly in a word or two; but we shall attempt to compress it in the fewest possible words. Specific gravity is the relation of the weight of a given bulk of one body to that of the same bulk of another body. A *measured* quantity—say an ounce—of mercury weighs very differently from a measured ounce of alcohol. It is much heavier; its "specific gravity" is greater.

It is essential that, in order that specific gravity be made measurable, some one thing should be assumed as a standard of comparison. For solids and liquids the particular body adopted as a standard is water, and the particular quantity of water a thousand grains. A specific gravity bottle is one that contains exactly a thousand grains^o of water, at the ordinary temperature of the atmosphere—say at 60° Fahr. Every experimental photographer ought to possess a bottle of this kind. Those made and sold expressly for this purpose have a nicely-fitting stopper with either a hole drilled through the centre of the stopper or a groove cut into its side. Hence, when the bottle is quite filled with water and the stopper inserted the overplus will escape through the

^oOr the half of this quantity.

hole or the groove, and the bottle will be left exactly full, and neither more or less than full; the weights of the contents must then either be a thousand grains or the half or the fourth of that number. Five hundred grains, or a little over an ounce, is a very common capacity for specific gravity bottles, and a bottle containing this quantity is what we generally use in preference to any other.

Those who have not a properly-constructed bottle of this kind may make one for themselves. Select a bottle which will hold five hundred grains of water. This is ascertained by first placing the bottle—one holding a little over an ounce—in the scale, and balancing it carefully with shot, then adding the requisite number of grains, and pouring water into the bottle until the scales are in a state of equipoise. A sharp notch is made upon the outside of the bottle by means of a file at the level of the water. It is better to pierce a hole through the bottle at this level, so as to ensure all the superfluous liquid escaping. A sharp-edged file, kept wet with turpentine or paraffine oil, will enable any one to cut through the bottle in a minute or two. To lessen the chances of error, it is best that this should be done in the neck rather than the body of the bottle. A bottle made in this way will be quite accurate enough for every purpose for which a photographer will require to utilise it.

We come now to speak of the uses of a bottle such as we have described.

In a formula for making pyroxyline, which we extract from our ALMANAC of last year, we find that sulphuric acid (1.840) and nitric acid (1.400) are employed. We further see a reference to ether of the strength or specific gravity of .750. The exact value of these figures will be seen from the following simple rule: To ascertain the specific gravity of a liquid fill the bottle—one which contains a thousand grains of water—with the liquid to be tested; weigh it very carefully (using, of course, a counterpoise for the bottle), and the number of grains the fluid weighs is the specific gravity. If a bottle holding only five hundred grains be employed, then the

resulting weight must be multiplied by two. Sulphuric acid, as every one knows, is far heavier than water, and it is the stronger in proportion as it differs from the weight of water. Hence the meaning of the figures 1.840, which follow the sulphuric acid in a previous part of this paragraph, is simply this—that, whereas if the bottle were filled with water it would weigh a thousand grains, it will, when filled with sulphuric acid of the strength required for the purposes of the formula, weigh nearly twice as much, or 1.840 grains. Nitric acid is not so heavy as sulphuric acid, hence when the bottle is filled with it the weight will be only 1.400 grains, which is its specific gravity, represented by the figures 1.400. If the bottle were filled with mercury instead of sulphuric or nitric acid it would weigh far more, viz., 13.590 grains, which is its specific gravity.

Alcohol and ether are much lighter than water, hence the bottle when filled with either of these two substances will not weigh so much as a thousand grains. By that strength of ether represented by .750 sp. gr. is merely meant that when the specific gravity bottle is filled and weighed it is now so much lighter than when filled with water as to fall short of it by two hundred and fifty grains, the weight being only seven hundred and fifty grains, which number represents the specific gravity of the ether. The lighter the ether and the alcohol the stronger they are of course, the contrary being the case with the acids named; for the addition of water to them merely brings them closer to the specific gravity of water. Anything heavier than water has a point placed after the number of thousand grains it weighs; with anything lighter the point is placed before the number of hundreds of grains.

We do not feel it necessary here to go at any length into the subject of specific gravity as applied to gaseous or solid bodies; but, as the latter may be of some use to photographers, we shall give the rule for ascertaining it: Weigh the substance first in water and then in air, and divide the total weight (that in air) by the loss of weight in water; the

quotient is the specific gravity.—*British Journal.*

NOTES IN SILVER PRINTING.

BY C. J. HOPKINS.

DURING the past three or four years I have been troubled just as the hot weather sets in, my albumenized paper, that had been sensitized, printed, &c., refusing to tone. My former practice had been to make fresh silver solution, when all would proceed well again. When it occurred as usual this last season, I had about a gallon of silver solution in use. I was determined, if possible, to find out the cause and remedy. I had up to that time always kept the solution neutral with carbonate of soda, forty grains strong, which would produce good results if all was right, that is, newly made. I made a fresh acetate toning bath, but of no avail; they still remained obstinate, and would not change color the slightest. I then tried different makes of paper, with no better results. I then added ammonia to silver bath; results slightly better, but not much. The last resource: I procured an earthenware jar, put the silver solution, in its alkaline state, in it, and boiled it in a saucepan. The result was a heavy, black precipitate. When cold, I filtered it and acidified with nitric acid, (acetic would have done, but the loss would be too much, every time the bath was treated with ammonia, acetate of silver being precipitated.) The result recompensed me, and has ever since, for all the trouble taken. The solution must have been so impregnated with the impurities from the albumen as to retard the toning altogether. Boiling it in an alkaline state precipitated it, and filtering took it quite away; and I think it worked better than a new one, giving good tone with the same acetate bath as used previously, with the proper depth and richness in the finished print. I now boil it every time a certain quantity of paper is floated on a certain amount of solution. It also brings it up to its original strength by the loss in evaporation. I feel confident I shall not be troubled with the same enemy again.

Some paper I have coated with stale albumen will resist any toning formula, and soon saturate the sensitizing solution with impurities. With the above method an acid silver bath that can be seen quite plain by test paper, may be used, which will cause the paper to keep its color longer, especially with the carbonate of soda paper process. The toning will proceed quite as satisfactorily as with a neutral bath.

In conclusion, let me add another hint I have found very useful. I had two or three samples of rather highly albumenized paper during the summer months, but I could not get such good results with them as with a lower surfaced paper, always keeping it in a dry place. I was compelled to put aside for a time, and as the weather became cooler, I thought I would try it again under different circumstances. I placed as much as required, a few hours previous to using it, in a position to take the dryness out of the paper, leaving it more pliable, also the albumen surface more porous to receive the sensitizing. The results were excellent, giving me such brilliancy as I could not obtain before, proving that the albumen film should be slightly loosened just previous to sensitizing.

I do not wish it to be understood that the above hints are stated as anything new or novel, but the result of my experience in the practical working of my business.—*Year Book.*

Photographing the Transit of Venus.

MR. J. AITKIN gives in *Nature* the following hints on what is known as "blurring," but which he styles "irradiation."

"The following is the result of some experiments recently made on photographic irradiation:

"If, as is generally supposed, photographic irradiation is caused by the reflection of light from the back surface of the plate, then photographs taken on non-actinic colored glass ought to be free from irradiation, because the light would be quenched in the glass, and

therefore no reflection could take place.—Photographs of a model transit were taken on yellow, orange, and red glasses; but in all cases the irradiation was nearly as bad on the colored glasses as on the clear glass.

“Photographic irradiation may possibly be caused, either by the bright light producing an intense state of chemical activity, which has the power of spreading itself, or, what seems more probable, the parts of the collodion on which the bright light is falling become luminous, and reflect light to the surrounding parts of the sensitive film, and thus extend the chemical change in each side of the true optical boundary line. If this is the explanation, then we can correct photographic irradiation by allowing only sufficient light to fall on the plate to produce the necessary chemical change, so that there shall be no surplus to be reflected; or we may make the sensitive film of such a nature that it cannot reflect the actinic ray. There are two ways of carrying out the first of these plans. We may either ‘stop’ down the lens by means of a diaphragm, or we may pass the light through a non-actinic colored screen. The first should be the best plan, but was not found practicable with the Dallmeyer ‘triplet’ lens used in the experiments. Screens of glass and colored solutions were then tried, and photographs of the model transit taken perfectly free from irradiation, and not to be distinguished from photographs of the model taken against a dull sky, which required fifteen seconds’ exposure. Experiments were then made to make the sensitive film incapable of reflecting actinic rays. This was done by adding red aniline to the collodion, till the color was found by experiment to be deep enough. Photographs taken in this way were also quite free from irradiation. After the photographs were developed and fixed in the usual way, they were treated with chlorine gas, which destroyed the red color, and left the photographs on a clear film.

“Ocular irradiation is also, in all probability, in part caused by the reflection of light in the eye. But in addition to this cause there is another of considerable importance—

namely, the ‘persistence’ of the image combined with the unconscious motion of the eye, as the impression received by the brain is not only that of the light on the part of the retina where the image at the time is, but also that of where it was a short time before; the mental impression must, therefore, be larger than the image on the retina. Ocular irradiation can also, in all probability, be corrected by reducing the amount of light falling on the eye to the minimum necessary to give a distinct impression. The reflection in the eye will then be less, the image not being so bright will not ‘persist’ so long, and the light not being so brilliant the stimulus to the unconscious motion of the eye will not be so great. Diaphragms will, of course, be preferred for this purpose. When screens are used it is probable that neutral-tinted ones will be found to suit best.—*Photo. News.*

Photographing Below Zero.

BY T. C. ROCHE (New York).

LANDSCAPE photography in winter by the wet method is very difficult and hard to accomplish successfully. The usual dark chambers or portable tents used for summer's work seem to be perfectly useless, in consequence of being so liable to admit cold air, and are, besides, cramped for room.

In getting those grand ice scenes of Niagara and Catskill Mountains, the thermometer ranging from zero to 16° below, I do not alter my chemicals. I use a box (mounted on a small sleigh) twenty-six inches wide, forty inches long, and thirty-six inches high, made from half-inch pine. On one side I have an oval opening large enough to admit head and shoulders; and on the opposite side my yellow light. I have attached over the oval opening a good, heavy, dark cloth to drop over my back to keep stray light out. Inside the box, on my left hand side, I have my bath heater, which is a small zinc tank for holding warm water; this I fill before starting out. The tank has a receptacle on the top to put my porcelain bath-holder in, and also

places for holding bottles of developing solution, &c.

There is a small aperture at the bottom for an alcohol lamp; also on one side a small tap to draw off warm water if needed. On my right hand side I keep a box with divisions in it for glass, collodion, alcohol, glycerine, extra developer, brush, &c. This "rig," though apparently heavy, with camera and all inside, draws lightly over the snow. Where everything is covered and loaded down with snow and ice the glare of the light in sunshine is quick and strong, and will generally fog the plates, unless the diaphragm be reduced to about the one-sixteenth of an inch, and the exposure to two or three seconds.

Your view should be chosen and your focus made before your plate is withdrawn from the bath, as your plate would freeze if kept out for a few minutes. Another source of trouble is, when you draw your slide from the holder, the heat from your plate, be it ever so little, will condense in your back lens and fog it up. To avoid this trouble, after taking your plate off the bath you must expose and develop as quick as possible; then flow in a weak solution of acetic acid and water, drain for a few seconds, and flow on a solution of alcohol and glycerine twice (glycerine, two ounces, alcohol, four ounces), and put into your plate-box. There is no danger of your plate freezing now, and it can be finished at your home. This glycerine and alcohol I have used for moist plates on several occasions. The developer and bath must not be allowed to get too warm. I invariably use Dallmeyer's lenses.—*Photo Daily Companion*.

CURIOUS CUSTOMERS.—No. 8.

THE AMATEUR.

You always know him! There is no mistaking who and what he is. His manner is that of a newly fledged owl, surprised at his early view of this great world, yet with some inward conviction that he is "quite up to its

little games"—a sort of, "you're not going to gammon *this* cockalorum," air. The amateur, photographic, generally, is a smart individual, and in many cases could teach you and me a great deal we don't know—and don't want to; but for all that, when he comes to look around at the Art in its business aspect, he is a little taken aback, just as many great and clever people have been before him—as the omnipotent Romans were at the sturdy resistance of the indecently attired (?) Britons, and as the latter a few years later were, at the hard knocks Yankees could deal out. But I don't intend to treat you to a historical paper, so I will return to the Photographic Amateur who has honored us with a sitting.

As I go through the little preliminary conversation general to the occasion, and while preparing the plate I can see he is several times on the point of speaking with a view to showing his knowledge of the operations, but with an effort he restrains himself, and keeps close as an awe-struck oyster. He is evidently unwilling to compromise himself; but as the headrest is slammed up to his head, and he is told he may wink when he pleases, and so on, et cetera; he feels on safe ground and opens, as I expected he would, with a remark on the efficacy of iron on the constitution in nervous cases, with a little dissertation on the prejudice of the general public against the "iron abomination."

I smile at his little "goak" just to encourage him a little, and to show him I am not stuck up or haughty in my position as an artiste, and thus re-assured he launches forth into his own experiences. He kindly tells me how he does this, and flatters me by asking how to do that, but as my plate is getting dry I have to ask him to dry up and sit still.

He is generally speaking a good and a docile sitter, for as he says, "I know you are better acquainted with what is best for me than I could be myself."

What a pleasant glow of self-conceit and professional pride such an admission put one in, to be sure! One could grant any favor to a man who recognized one's genius in such a

sensible manner, so that when he requests to be allowed to accompany you to your dark room, your permission is given in a very pleasant manner—but be warned by me—don't do it!

The amateur I have in my mind's eye is a big man, apparently good natured and a jolly soul—but what a dreadful time he led me! Not that his conduct belied his appearance; not at all, but it was his good nature which proved the rock on which my peace of mind was shattered. His anxiety was to get out of my way, but of course he did not know how to do it. It was something like the sight of two undecided persons doing their best to avoid collision on the sidewalk; first one bobs to the outside of the pavement and the other follows and meets him, the similar movements are carried on to the inside, then they bow and cross and can't find an opening, when one endeavors, apparently, to dive under the legs of the other, which feat does, not answer; and they both mutter blessings backwards and scowl and look fierce and unpleasant, so with my well-meaning amateur who tried hard to keep out of my way. I thought I never should be able to get to my plate-holder stand, and a little later I feared I should not be able to get the dark room door closed, until I stood still and ordered the amateur to do it.

Then, the way he crowded over my shoulder and fanned my back hair—where it is really getting very thin—a cold breeze from his breathing down my neck! It wasn't so bad if he had not thought he was assisting by handing me the wrong solutions, so that I was on the point of mixing up for a strengthening solution, a mixture of *pyro* and *cyauide*.

I nearly knocked his front teeth out when straightening myself when the plate was all right, and he had his turn in the most good natured way possible, by knocking the plate out of my hand as he turned to open the door.

Well, he obtained his desire to see how a professional photographer works in his own den, and I gained experience by which I have

profited by making the rule, and adhering to it,—*never to allow strangers in my dark room.*

HINTS.

BY W. T. WILKINSON.

Nitrate of Baryta Bath.—Those photographers who still enlarge by means of a camera transparency will find that the use of Mr. A. L. Henderson's nitrate of baryta bath gives splendid transparencies. In copying from a hard negative this bath gives charming results, allowing the exposure and development to be prolonged so as to get all the detail out in the whites without clogging up the blacks. For transparencies for the stereoscope, or for decorative purposes, the peculiar deposit upon the film gives a much finer effect than the finest ground glass. In ordinary negative work the nitrate of baryta bath is admirable, giving enhanced sensitiveness and freedom from pinholes caused by excess of iodide. Mr. Henderson has conferred a boon on the profession in bringing out this addition to the bath.

Development.—Photographers who aim at good work, and at ease in getting through it, are recommended to use a saturated solution of iron for their developer. It saves a great deal of time in making up solutions, and a great deal of trouble in weighing, shaking, &c., and the strength of the developer can be altered at pleasure, to suit the particular subject in hand. To use it, take

Saturated solution of iron.....	1½ ounce.
Glacial acetic acid.....	6 drachms.
Water.....	18 ounces.

This gives a fifteen-grain developer.

To make a twenty-grain developer, take saturated solution

of iron.....	2 ounces.
Glacial acetic acid.....	6 drachms.
Water.....	18 ounces.

Intensifier.—Pyrogallic acid being difficult to weigh in small scales, and in large ones is too light to be weighed accurately, is best kept in a concentrated form, thus:

Pyrogallic acid.....	1 ounce.
Citric acid.....	2½ ounces.
Water.....	10 ounces.

To mix for use—

Take of the above.....	1 ounce.
Water.....	19 ounces.

Fixing.—Hyposulphite of soda for fixing prints will be found convenient, if kept in a saturated condition. For use, take of—

Saturated solution.....	1 pint.
Water.....	1 pint.

This is in the proportion of five ounces of hypo. to the pint of water.—*Photographer's Daily Companion*.

On the Cause and Cure of Blisters in Albumenized Paper.

BY DR. J. SCHNAUSS.*

THE introduction of the gold toning bath dates almost from the universal adoption of albumenized paper. At the same time a peculiar defect crept into the printing process, which attained its highest point with the employment of very brilliant albumenized paper—we mean the production of blisters in the albumen surface of a greater or lesser dimension, which only become visible in the toning bath or in the washing trough.

The opinions of those practical and learned in the matter, upon the appearance of this phenomenon and its cures, are as numerous as they are different, and we will here cite some of the most interesting views expressed, to show how they agree. M. Haugk says that blisters are produced upon papers albumenized in hot weather, and which are therefore too dry, for if a moist paper is albumenized it develops no blisters. In America they employ ether added to the silver bath to prevent the formation of blisters, while Dr. Liesegang recommended some time ago a prolonged floating upon the silver bath.

Upon the strength of the silver solution, photographers are not in accord: some recommend a weaker and others a stronger solution to prevent blistering. M. Carey Lea tells us to employ a weak soda bath between the operations of fixing and washing. Mr.

Henderson seeks the cause of the defect in the strong sizing of the unprepared paper, the albumen being, in such a case, unable to penetrate into the material. He recommended the keeping of albumenized paper in a moist locality, and to employ a weaker silver bath. Mr. Dunmore advises dipping the albumenized paper, after sensitizing, in strong alcohol; while Mr. Spencer avows that if an acid toning bath is made use of, blisters need not be feared.

On the following points all are agreed: the blisters are to be found only on highly albumenized papers; nevertheless, the defect is not universal, for in a quire of paper only certain sheets exhibit the defect; moreover, sheets following one another, which may be presumed to be albumenized in order, often, as we have observed, show the defect.

Alkaline baths (as also ammonia fuming) favor the formation of blisters, a fact that may be explained by the solvent action of *alkalies* upon albumen.

All substances which coagulate albumen are capital remedies against blisters, as, for instance, alcohol and ether, and likewise heat. Nitrate of silver can scarcely be classed among these substances, as it only coagulates by combining with the albumen, forming albumenate of silver, which is insoluble in water. As we know, however, the nitrate only partially changes the albumen, for while the surface is rendered insoluble, the film underneath, next the paper, still retains its solubility, in which the cause of blistering may be sought. If an albumenized paper of this kind is floated for a few moments on the back, no blistering need then be feared. This method is, however, too costly a one in practice, for if this extra amount of silver solution is not actually lost, still it is at any rate absorbed from the bath. Moreover, this is a remedy of which the manufacturer of the paper cannot avail himself, any more than the coagulation of the film with alcohol, &c. We shall, however, at the end of this article specify a much more simple and certain remedy, which may be employed with advantage both by manufacturer and customer.

*Photographisches Archiv.

A perfectly analogous appearance may be observed in the Taupenot collodio-albumen process, for very often the albumen rises in blisters during the operation of fixing with concentrated soda solution, a strong fixing solution bringing out the defect in a much more marked degree than a dilute one.

On drying, the blisters disappear—so completely indeed, that many photographers trouble themselves little in the matter; often, however, in the dark shadows, they leave behind grey spots or patches. Moreover, the lifting of the film affords convenient recesses for the soda solution, which accumulates there, and subsequently forms stains, as it cannot easily be displaced from those spots by subsequent washing.

As I was of opinion that the formation of blisters was due to a partial running off of the albumen film from the paper, the cause of which was possibly different, and at present unknown, I instituted the following careful experiments on the subject:—

1. From a sheet of brilliant albumenized paper, which was proved to be inclined to blister, some small pieces were cut, of which a few were sensitized in the ordinary manner, except that the back was also floated on the solution for a few seconds. The result was that no blisters were formed (after fixing and washing), but, at the same time, many iron spots were apparent, and its sensitiveness impaired, as well as the tone of the pictures injured, there being some patches of a red tint which were difficult to tone.

It was quite immaterial whether the paper was exposed to light or not, the blisters appearing just as frequently upon the whites of the pictures as upon the printed portions, so that the effect of the light can have nothing to do with the formation of the blisters.

2. Other pieces from the same sheet of paper were coated on both sides with alcohol, dried, and sensitized. No blisters were produced; aqueous solutions were easily repelled by the albumen surface, as a proof of its complete coagulation. But light red spots were apparent in this instance also, a proof

of unequal toning. In this case, too, the sensitiveness seemed diminished.

3. Other similar bits of paper coated with alcohol on the face only behaved in the same manner.

4. The same result was obtained with paper which, after sensitizing, was treated with alcohol on the back.

5. The same result was also obtained by the addition of alcohol or ether to the silver bath; these additions would doubtless influence both the keeping qualities and character of the silver bath.

All these remedies have the disadvantage that they cannot be employed by the manufacturer, but only by the consumer, which cannot be said of the method I am about to refer to, and which I have several times tested as to its efficiency.

I must here repeat that in the first place it seemed to me proven that the formation of blisters in the albumen film consisted in the unequal coagulation of the albumen; or, in other words, in the partial adhesion of it to the surface of the paper. If, as happens in many factories, the paper is, before being albumenized, coated with a solution of India-rubber and benzole, as a matter of course the blisters become more frequent, supposing the albumen is applied undiluted, and forms, therefore, a very thick and tough skin.

A perfect coagulation of the albumen is nevertheless in no way profitable, as this prevents the uniform absorption of the bath solution. If we take into consideration the favorable influence of moisture during the keeping of the paper, or just prior to its being sensitized, as a means of preventing blistering, we must come to the conclusion that the best plan is to bring the albumen into a more soluble state, not from the front, however, which would dissolve off if brought into contact with water, but from the back through the surface of the paper. In this way a perfectly firm adhesion of the albumen film to the paper is brought about.—The manufacturers will be able to say better than I whether they moisten their paper or

not before albumenizing; but when they do, further moistening of the film subsequently would be necessary. How far, too, a very dry or warm storage would necessitate moistening again on the back can only be decided by experience.

I must not also forget my observation that those albumenized papers which smell very foul are less apt to blister. It is not impossible that by becoming rotten, so that several gases are disengaged, the albumen becomes more loosely attached to the paper. It is a well-known fact that many manufacturers purposely allow the albumen to become rotten before it is used, as it then becomes more fluid. At first I allowed the albumenized paper to float on water on its back until it had become flat, small pieces always rolling up very rigidly; but I found that the paper absorbed too much water, and for this reason I preferred to lay the sheets face downwards on clean blotting-paper, and to sponge the back with a very moist and perfectly clean sponge. Before being sensitized the paper must be again rendered pretty dry (being dried in the air, and not by artificial warmth,) as otherwise the surface will be unequally moist, and red patches on the finished photograph will be the result.

That photographers are more or less troubled with blisters is due doubtless to the greater or less degree of moisture in the store where the albumenized paper is kept, as also upon the strength of the soda bath employed. Is there, for instance, any tendency in paper to become blistered, this is scarcely apparent in a weak soda bath, whereas long-continued immersion in a strong hyposulphite solution develops blisters in plenty. The first cause, viz., the changing amount of moisture in the atmosphere, may also influence the albumenized paper during manufacture. In the absence, however, of any definite knowledge as to the mode adopted in the manufacture of a paper, which, no doubt, differs in many establishments, the primary cause of the defect can scarcely be fixed.

If, before employing a fresh batch of albumenized paper, it is desired to discover which

sheets will blister, and which will not develop the defect, it is well to cut some small strips off several of the sheets, and, having numbered them for identification and comparison, they should be tested. They are floated (not immersed, for this would have the effect of preventing blisters) upon the silver bath, and are then treated in the same baths exactly as if they were pictures, only a rather stronger hyposulphite bath should be employed than usual. When in this latter solution, or in the washing bath following, the paper may be examined for blisters. These manipulations may all be carried out in a very short space of time. Such an examination as this will show that in one and the same squire there are sheets that blister, and others which do not, while some sheets will be found liable to blister at one end and not at the other, the reason for this being, no doubt, that in drying, the albumen has run to one side, where a thicker film has been produced.—*Photo. News.*

A FEW OF OUR SINS.

It is not an unprofitable study to view our character in the photographic profession as it is, no doubt, inequally conducive to improvement in our daily private life; and although I don't wish to assume the position of the father-confessor and give you sound and unpalatable advice, I yet intend to jot down some of the most grievous and palpable short-comings which must appear doubly distasteful to those of the outside world with whom we come in contact.

To begin then, (if it is not a confession of your sins, at least some of my own,) we are not as we should be—scrupulously clean and neat in appearance—and what is more trying to gentlemen and gentlewomen than to come in contact with a sloven? If you are the proprietor of a gallery you will find this out to your great cost, and if an operator your chances of getting and keeping a good situation is considerably lessened. It cannot but be admitted that the work of an operator is rather against purity of fingers, and after a day's hard work he might well echo Lady

Macbeth's query about the cleansing of those little hands, but a little rinsing of the fingers after each development of plates removes a great deal of silver which would otherwise be retained in the skin to blacken under the influence of light. Spots, too, will appear on the garments, with the most careful manipulation, knocking spots out of your coat and pantaloons, but that is no reason why you should grow careless. I must admit that the interest I take in a new coat (and that a considerable one, because of the rarity of the phenomena) entirely ceases when it gets spotted in one or two places; but that really is the time when extra care should be taken to guard against more such appearances—besides, an old friend should be cherished.

I hope you are not of an irritable disposition! So many operators give way to bad temper, and nothing is so distressing. I know that to be civil and kind to *everybody* who comes into a gallery for a picture would require the patience of a Job and the sweetness of disposition of a Cherubim; but then how necessary such honied deportment is!

Don't smoke—in business hours! Its almost too much to ask frail human nature to give up the fragrant weed. When I can ask myself to throw away my cigar, with any chance of success, I will ask you to do the same, as the nasty stale smoke hanging around the hard smoker offends the nostrils of many of our best customers.

Don't drink—I can safely say, a bad habit my boys, and one rather given to the ungrateful habit of “going back on you heavily.”

Cleanliness is next to godliness, is an old copy book maxim, but in photography it is before everything, if we may say so without irreverence. Without it you cannot make good work, please yourself or please others. I hope none of your readers have to say *mea culpa* to any of these cardinal sins.

Keep your nitrate bath always covered, and your bottles well corked and stopped, as well as distinctly labelled.

SECURING SHORT EXPOSURES.

IN some recent observations on the subject of long and short exposures, we mentioned the fact that some portraitists recognized advantages in sittings sufficiently long to allow the features to acquire composure after the first few moments of nervous anxiety which in some cases follow the injunction to remain quiet. There can be no doubt however, that every facility which enables the portraitist to reduce the duration of sitting at his pleasure must be regarded as a valuable accession of power. In the course of a recent conversation with Mr. J. R. Johnson, he was good enough to detail the results of various observations he had made during a recent visit to Paris and Marseilles, when various photographic novelties came under his attention.

In visiting the studio of M. Wallerie, at Marseilles, whose portraits were amongst the most perfectly lighted he had seen, he was filled with astonishment on entering the glass room. It was in construction, to use his own words, rather like an enlarged cucumber frame than an ordinary photographic studio, the roof was so low and nearly flat. When he witnessed a sitting, he was still more surprised at the extreme rapidity of the exposure, which, in mid-winter, occupied an insignificant number of seconds. The disadvantages of very lofty studios are familiar to most portraitists; but few have ventured on the experiment of making the roof so low that a tall man only just escaped striking it with his head. It is clear that, for many reasons, the nearer the sitter is to the glass the greater the amount of light he will receive, and the more intense that light. Not because, as we have heard the matter thoughtlessly argued, the sitter is nearer the source of light, because the glass roof is not the source of light; it merely represents the aperture through which the light passes, with such loss as it suffers from absorption by the glass. But the nearer the sitter is placed to the aperture through which light passes the greater must be the amount of light from the

sky. The problem to be solved in building a glass house is to secure every ray of light which can possibly fall upon the sitter and light him effectively, and to exclude every ray which does not so light him from the studio altogether. If the sitter were placed in an open place, with the light of the sky reaching him from every direction, the opaque parts of the studio should consist of such walls or screens as would exclude all light falling on parts not required, securing the most brilliant illumination with the most effective gradation into shadow possible. If theoretic considerations only prevailed, it would seem that a high skylight, with side lights joining it, should be as effective as a low skylight. As a practical fact, varied experience has shown that a low skylight is, under any circumstances, most conducive to rapidity, and that it generally affords facilities for the most effective lighting. Our object here is not to discuss the question of glass houses generally, but simply to give renewed effect to the limit which our friend's observations has recalled to our attention.

We may remark, in passing, also, that the style of portrait in vogue in the studio in question, and also in Paris generally, is the enamelled cameo cabinet, described by Mr. B. J. Edwards in our YEAR-BOOK. It is certainly a most effective style of portraiture, the enamelled surface and convex cameo form harmonizing admirably with each other, giving an unusually fine effect of brilliancy and relief.

Another of the facilities for reducing exposure has been frequently brought under the attention of photographers, but has failed to secure general consideration. We refer to the accelerating influence of diffused light applied to the sensitive plate. We mention it again here simply to state the result of experiments which had come under the observation of Mr. Johnson when in Marseilles. Our readers have been made familiar, in the letters of M. Lacan, our French correspondent, with the name of M. Melchion, an experimentalist in this direction. In Marseilles Mr. Johnson visited M. Melchion, and was

much struck with the unquestionable acceleration obtained by the aid of diffused light. The mode employed by M. Melchion, as our French correspondent has described, is very simple, and recognizes simply the influence of weak white light, discarding any notion of an occult action in colored light. Before exposing the plate upon the sitter, he submits it for a few moments—two or three being generally sufficient—to light passing through a ground glass. This exposure is sufficient to initiate an action all over the plate where the illuminated image falls, but insufficient to produce reduction where no further light falls, so that no fog need result. If any trace of fog be found to follow, the exposure through ground glass has been too long, and must be reduced. It is precisely the same in principle as the momentary exposure of the Daguerreotype plate to diffused light, which we have often described, and which twenty years ago we constantly practised. There is another noteworthy point in connection with this operation to which Mr. Johnson called our attention. The result of such exposure to diffused light is not a simple acceleration: it effects something more, especially where the sensitive film consists entirely or largely of bromide of silver. It renders the film sensitive to non-actinic rays, which, in an ordinary exposure, would have been totally without action upon it. Objects of vivid yellow, orange, or red, which in an ordinary exposure would have produced no action upon the plate, are found, after the plate has had this momentary exposure to weak diffused light, to act and produce images in their due gradation of light and shade precisely as objects of actinic color. This, if it be found confirmed in general practice, is surely an advantage which cannot be overestimated.

The important point is to secure a satisfactory method of regulating the amount of white light, so as to secure sufficient to initiate action, and not enough to induce fog. M. Melchion, as we have said, uses ground glass. His method having been tried and adopted in Paris by several of the most distinguished portraitists, some of them have used opal

glass as more convenient. M. Lacan's letter, in our last, mentions some of the gentlemen who have adopted the principle, and describes the ingenious mode in which a disc of ground glass, or opal glass, in the cap of the lens, is made available in securing the brief action of diffused light. Our readers will remember the plan patented by Mr. Gage, a few years ago, of securing a similiar end by exposing the plate in the camera for a few seconds to a piece of black cloth or velvet. An exposure to weak diffused light, strictly under control, appears to us better adapted to the end than the use of green or red glass in the camera; but whatever method be employed, we cannot but think that some of them are worthy of more attention than they have yet received, and, if anywhere, surely in the dull, murky light of an English winter. *Photographic News.*

WATER.

BY JULIUS GAUSSOIN,
(Traveling Photographer,) written for *The Photographers' Friend.*

THREE-FOURTHS of the earth's surface is covered with water, and when found in contact with minerals, salts or other natural substances, is impure. In thin sheets it appears colorless, but in large masses it appears blue. At 4° (the temperature at which it is densest) water is 774 times heavier than air at 6°. A cubic *centimetre* of water at its greatest density—that is, at 4°, is the French unit of weight. *En passant*, we hope that the French *système* of weights and measures will, before long, be universally adopted.

Water evaporates at all temperatures; even ice slowly evaporates without passing into the liquid state. In crystalizing, water increases in volume, and that is the cause why so many bottles are broken in Northern galleries during the winter. Water can be decomposed by iron at a low red heat, and under the influence of heat, of electricity, the two gases, oxygen and hydrogen, unite

chemically, and water is formed. In freezing water rejects a great part of the foreign substances which were dissolved in it. Up North, where ice may be had in abundance at all times, may be employed as a convenient substitute for distilled water, snow, spring water, river water or rain water that falls after the atmosphere is well washed, are nearly pure. When water has been absorbed into the earth it becomes impregnated with mineral and other substances, and is then a little more troublesome to purify.

Water for photographic uses should always be boiled to exclude the gases and to precipitate the foreign matters. In my opinion, the best and simplest way to obtain pure water, is to take rain water, put a few drops of ammoniac—say 20 drops to the half gallon, boil it down to one half, then put a few grammes of nitrate of silver into it and expose to the sun *till clear*. (Never expose your silver bath to the sunlight; boil it down to dryness if necessary.) I have in this way purified water containing 20 to 50 grammes of foreign matter and saved my silver.

Pure water is not fit for domestic purposes. Every animated being, possessing respiratory organs, will die in a few moments if immersed in distilled water. At sea, when sweet water gives out, sea water is distilled and then exposed to the air, so that by absorbing the constituents of the air, it may become fit for drinking purposes.

A weak solution of cyanide of potassium (K. C. N.) will cleanse the dinginess that we meet with so often in old daguerreotypes, and restore them to their pristine freshness, and thus the artist, if artist he is, is enabled to take a better copy.

Permanency in Silver Prints.

THE old question, and old uncertainty. Why do silver prints fade? Is it from imperfect fixation, imperfect washing, or the unstable material of which the image is formed? The answer is, probably all three—at times separately, at times in combination. As we have often said, we believe it is less due to imper-

fect washing than to other causes. The use of a lead salt to remove hyposulphite and dispense with the necessity of perfect washing appears, as will be seen from another article, to have proved a failure. If, as we have often urged, the mischief is most frequently due to action set up in the fixing bath, a plan suggested in the last number of Anthony's *Bulletin* is worth attention. Referring to some prints which had remained pure during various vicissitudes, the Editor says:—

"The only peculiarity in the management of these pictures was that a little air-slaked lime was diffused through the hypo. solution before the prints were put in it. This removed any uncombined sulphurous element, and prevented the formation of a sulphur compound of silver in the whites. If the cause of fading be the free hypo. left in the paper, that can be eliminated by the use of some solution containing a salt which by double decomposition forms an insoluble compound with the sulphur of the hypo. Those easy of acquisition are the nitrate of lead, nitrate of barium, and nitrate of lime. A great deal of evidence has accumulated in favor of the lead salt, and we have been and are surprised, considering the importance of the matter, that so little experiment seems to have been made in this direction.

The most recent evidence respecting the lead salt for removing hypo. from the print appears to be altogether unfavorable; but the application to the hypo solution of a substance which unites with any uncombined sulphurous element appears to be free from objection of every kind, and is well worthy of further adoption. We add general details of the printing operation described as successful in the article in question:—

"In our practice we proceed as follows: Our silver solution runs from 30 to 40 grains of nitrate per ounce of water. To this are added a few drops of liquor ammonia, and the solution is shaken and allowed to settle clear. After being decanted, a small quantity of alum is added, and the solution is poured into a dish for use. The paper is floated one minute, dried, fumed with am-

monia about ten minutes, and printed. A washing bath is prepared by adding to each quart of water used, one drachm of acetic acid No. 8 (if pure.) The prints are first placed in this, and left to soak about fifteen minutes. By the combined action of the ammonia still left in the paper and the acetic acid, the nitrate of silver is converted into the acetate, which remains in the water. The prints are subsequently rinsed (only) in two changes of water, and are then placed in the toning bath. It is not necessary to describe the toning bath, because by the acid treatment above described any properly made alkaline bath will answer perfectly well. After toning, the prints are placed in a tank with a small quantity of water. After the toning is finished, the prints are gathered in a mass and left in that state until next day, when they are fixed. After fixing, they are distributed in five large tanks. In these tanks the water enters at the bottom, rises through the mass of prints, and passes off at the top, descending through a pipe to the bottom of the next tank, and so on. The tanks are first filled independently twice, and the entire water drawn off twice. Then the water is allowed to run. We find that water running in this way for three hours removes the hypo, so that by the starch test it cannot be detected. As a consequence of this mode of working, we are able to say that we never have faded prints, and never now have yellowish whites. It will be seen that in our practice we do not use the lead, lime, or baryta salts. The reason of this is that we wish to avoid too much handling of the prints, as the salts spoken of should be diffused through the water, from which the prints would necessarily have to be first removed. The above remarks apply of course only to prints likely to be affected by hypo left in the paper. It remains to be learned whether prints from which all the hypo, as indicated by the starch and iodine test, has been removed, do fade. If they be found to fade, investigation should be directed to the possible cause."—*Photo. News.*

Aim at good pictures rather than quick ones.

FOREIGN NOTES.



THE latest "dodge" for shortening exposure is the invention of Mr. Fry, which consists of using a cap to the tube with a front of opal glass, and giving a preliminary exposure through this of a few seconds and then proceeding in the usual way. It is claimed that the time is much reduced with just as brilliant effects.

THE right to a private negative being decided to be exclusively the sitter's, it is proposed to copyright them in England, where much trouble has occurred through the publication of pictures intended to be private, but which have been copied by others than the original photographer.

THERE has been very considerable trouble in the London Photographic Society, almost amounting to a rupture; but there now seems to be a settlement of a difficulty which at one time threatened its existence.

A Photographer's Benevolent Society has just been started in Paris among the employees, which gives promise of being productive of great good. Upon the payment of not large dues, the member is entitled to an allowance when sick, to a burial when deceased, and quite a gratuity is given to the widow or orphans. The society also exerts

itself to procure situations for the members, and otherwise assists them. No arbitrary system of prices is attempted, and good character is an essential.

AN imitation oil painting is said to be successfully done by coloring a photograph in strong water colors, varnishing, and passing through a roller in contact with canvas, giving the print a similar texture.

IT has been noticed that a print partly done at night will, if left in the frame, be printed farther in the morning, though excluded from light, and this without the paper discolored. Can any one explain this?

THE "spirits" have gotten into the picture business again in London, and nobody sees how it is done except the medium, who sees how the public are "done."

THE use of photography as furthering the ends of justice is further exemplified in the recent celebrated "Tichborne" case, where photographic copies of the real man's letters were used by judge and jury. The number of criminals fleeing from justice that have been caught by the camera is innumerable.

PHOTOGRAPHS in relief, having all the appearance of sculpture, are now made, but the process is as yet secret.

Correspondence.

A bright, cheering letter from A. J. Jackson, Rockland, Me. He says:

The *Friend* for January has come safe to hand, and brighter and better than ever. It is among the things which cannot be surpassed for those in search of further light in photography. I find myself so much attached to it that I do not see how I can possibly do without it. I have also tried to get those in the same business (of my acquaintance) to subscribe for it, and no doubt in due time the circulation of it will be unsurpassed by any journal of its kind in existence. I *must* say that its teachings are clear and to the point, and have never seen a formula in it (that I have tried) but what was a perfect success. I would not sell one of mine for any thing if I could not replace the same. I have now taken up more of your time than there is need of, but in justice to you, the world, and myself, I cannot but say—May you never be out of “*Friends*.”

Our friend, Mr. C. D. Mosher, writes us a very flattering letter as to the manner the last illustrations of the *Friend* were printed. He is engaged on quite a distinguished job, being no less than the taking the photographs and making an album of eminent Chicagoans to be presented to Prof. Huxley, the eminent scientist of England. In such good hands the reputation of our American photographers is not likely to suffer abroad, and Mr. Mosher will delight and astonish our English brethren by his first-class work.

TOPEKA, KANSAS, March 25th, 1874.

R. WALZL, Esq.,

Dear Sir:—Enclosed please find P. O. order for \$2.50, for my subscription for 1874 to the *Friend*.

My library of photographic works increases apace, and at my annual invoice I found nearly two hundred dollars safely, per-

manently, and I think *profitably*, invested in the literature of my profession.

That there are *tares* as well as *wheat* in this collection is undoubtedly true, and that samples of *both* may be found in any single volume is quite as certain; yet the philosophy of Fatalism, if admitted, teaches the necessity of accepting a mixture of good and bad in all the relations of life; while on the other hand, the doctrine of Free Agency requires that we take cognizance of all the factors of a complex existence if we would intelligently select the really good. My custom for years has been to *glean* the entire field, and *garner* that which pleased my palate and supplied my wants.

Josh Billings says, “there is a heap of kussedness about human nature,” and he might have added with more charity and truth both, that there is a heap of “goodliness” about it as well.

In the course of a somewhat eventful life of contact with a great variety of men, I do not remember ever to have met a *single one* who had not some redeeming and meritorious trait of character; and in all my photographic reading I have yet to take up a single book from which I am not able to get some new or useful idea.

Books are not unlike men—they differ in size and quality, yet they are books for all that, and represent the thoughts and experiences of others besides ourselves, and in that respect are entitled to respectful consideration, for by comparison of experiences and aggregation of facts we arrive at practical knowledge. I find no use for any secrets in my profession, and the humblest “tintypist” who honors me with a call is welcome to any formula I use if he chooses to ask for it.

Very truly, your friend,

J. LEE KNIGHT.

We publish a very interesting report from the German Society of New York, and the full particulars of the new method of reducing waste, invented by Messrs. Kurtz & Kleinhaus.



WE thank Mr. Edward Boeicher, Secretary of the German Photo. Society of New York, for favors received in the shape of full reports and other interesting matter, and would explain as excuse for apparent neglect that the Photo. Friend is a bi-monthly.

OUR good friend, C. D. Mosher, has again enriched our Album with some fine work. We see he has been making some photos of the Chicago Medical College Faculty, and they are first-rate, excellently gotten up in the arrangement of matt, &c.

MR. G. Prestidge, Fort Atkinson, Wis., favors us with a Stereo proof of such a winter scene that it makes you chilly to look at it; by the way the tone is a little "cold," even for the subject.

It is good to have a wife, and when she unites with other accomplishments, the ability to "take" your picture, you can do as Mr. C. O. Nye, of Hudson, Mich., has done, send us a good picture of yourself taken by her. We would recommend to Mr. Nye the use of a screen to shade the light over the head, as this was the only fault in the photo.

WE are now looking at two good pictures of the same subject, from A. J. Jackson, Rock-

land, Me., which are nicely posed, well retouched, and generally fine work of such character shows taste, care and study.

MR. F. W. Hardy, Bangor, Me., has sent us a little child's picture, on a rocking horse, which has cantered right into our good graces. It is accompanied by a good card group of children. All well made and of superior finish.

A new and excellent plan to catalogue views reaches us from Mr. J. A. French, Keene, N. H. It consists in copying 72 of them upon a 4-4 plate so that one can see at a glance what the subject may be. Mr. French has any number of interesting views, all made he says by using spare time. The dozen or two samples which he presents us in addition to the Photographic Catalogues are splendid, the composition pictures being very fine. He issues also an amusing hand bill setting forth in theatrical style the performance of the J. A. French OPERATING troupe with a photographic programme.

MR. J. N. WEBSTER, Barton, Vermont, sends us some stereo. views with particularly good cloud effects and some fine illustrations of Vermont scenery; attention is be-

ing paid to the improvement of our out door work in this country, and these views show evidence of it.

THE Vermont Stereoscopic Company sends us some nice specimens of the scenery among the "green" mountains where the views are grand as we know by personal observation. They are located at St. Albans, once the "base" of the Fenians in their masterly attack upon Canada.

MR. T. G. Richardson, St. Albans, Vt. delights our eyes with some superior views of Vermont and New York scenery of the ordinary and the artistic size. Among the two dozen which he forwards for our inspection there are many first class ones both in interesting subjects and in workmanship.

WE return thanks for the many favors shown us from all quarters and the many letters in reference to our previous numbers, all containing praise enough to make us almost blush.

WE would call attention to our illustration and the enjoyable description of the "locale" by the gentleman who made them. No view is more favorably known than Mr. Stoddard.

WIPE off the crust that gathers around your developing bottle daily; also clean off your collodion bottles every evening, and fill them up if wanting. Have two negative baths in good working order in your dark-room, and one or two out of doors, running and purifying the same with ferrotype or positive baths.

ALWAYS have an extra plate holder of the kind you are using in your dark-room. Be sure and wipe out the holder after making a sitting, and you will have no stains on the corners of your negatives. Have closets in your dark-room for holding your albumenized plates. Never take pictures on plates that are not albumenized; the operator that does, is an old fogey and behind the times.

USE blotting paper several thicknesses behind your plates when you go to take a negative, and you will be many dollars better off at the end of the year, also on your shelves

and benches in your dark-room, where silver is apt to get spilt or dropped around. Never keep your hypo or cyanide in your dark-room if possible.

THE best way to develop negatives is hold the plate still and not rock it; better details will be got in the drapery. Never say a bad negative is good to get rid of one customer to wait on another, rather set it over and over again, it will pay better in the long run.

NEVER leave your dark-room of a night without putting every thing in its place, and have a place for every thing.

IN damp weather—in autumn or spring—it frequently happens that sensitized paper expands by reason of the moisture in the atmosphere, and for this reason it does not lie close against the negative, but buckles up in places. To prevent this, a piece of stout wax cloth is put into the pressure-frame behind the sensitized paper, in order to prevent the expansion of the paper.

THERE are young men who claim they cannot afford to subscribe to a Photographic Journal, and yet they can afford to smoke several cigars each day. This is really the case, astonishing as it may seem to some of the wise ones; and if those unwise ones do not change their tactics, they will in their photographic career, like their cigars, end in smoke.

WITH very young children greater freedom of pose will be obtained by placing them on a good sized table; they themselves will feel less constrained, and the positions will be fresher and more childlike. The head and figure by that means will come against the back-ground, rendering it easier to be vignettied.

FIRST, have the free nitrate of silver well removed from the prints before toning, or change it by chemical reagents, into some salt of silver, insoluble in water. The acetic acid bath, no doubt effects this, a prolonged soaking in weak salt, or carbonate of soda, and water, will do it perfectly.

THE PHOTOGRAPHER'S FRIEND.



"LET THERE BE LIGHT."

AN ILLUSTRATED

BI-MONTHLY MAGAZINE,

Devoted to the Photographic Art,

PUBLISHED AT

No. 46 N. CHARLES ST.,

BALTIMORE.

Expose the Wrong! Maintain the Right!

July,

RICHARD WALZL, Publisher.

1874.

CONTENTS.

	PAGE		PAGE
The Chicago Convention.....	97	Uncertainty—WM. HEIGHWAY.....	112
Something about the Transit of Venus—ELBERT ANDERSON	98	Photography in Venice.....	112
Curious Customers, No. 9—THE FIRST BORN.....	100	Success in Business—PROF. VOGEL.....	115
Among the Lions—DANIEL No. 2.....	101	No Learning Needed.....	116
A Simplification of Photography—SAMUEL FREY, 102	102	Against Weak Printing Baths—JOS. UNGAR.....	117
On the Color of Negative Films—F. WALLER.....	103	The Usefulness of Blotting-Paper in Photography —ALFRED HUGHES.....	119
Our Photographic Portraits.....	104	What Color is best for Photographs.....	121
German Photographic Association, New York— Washing of Prints.....	105	Photographic Illustrations.....	122
Notes on the Fading of Porcelain Pictures.....	106	Recovering the Silver from Photographic Wastes —JAS. CHISHOLM.....	123
Our Illustration.....	107	Photography at the Bottom of the Sea.....	125
M. Chevreul on the Invention of Photography..	108	Foreign Notes.....	126
Tincture of Iodine for Improving Negatives....	110	The Editor's Album.....	127

THE MEN WHO ADVERTISE.

Anthony, E. & H. T. & Co. <i>Photographic Stock and Chromos.</i>	Knell, Geo. <i>Chairs, Lounges, &c.</i>
Anthony, E. & H. T. & Co. <i>Adamantean Plates.</i>	Kelsey, C. C. <i>Banner Collodion.</i>
Anderson, J. A. <i>Photo Apparatus.</i>	Kellinger & Co. <i>Artists' Materials, Chro- mos, &c.</i>
Bachrach & Co. <i>Printers and Copyists.</i>	Lewis, R. A. <i>Collodion.</i>
Baldwin, A. H. <i>Photo. Materials.</i>	Lœffler, J. <i>Stereoscopic Views.</i>
Collins, A. M. Son & Co. <i>Cards, Mats, &c.</i>	Moulton, L. V. <i>Photographic Washer.</i>
Cooper, Chas. & Co. <i>Albumen Papers, &c.</i>	M'Collin, Thos. H. <i>Photo. Materials.</i>
Clemons, J. R. <i>Paper and Varnish.</i>	Magee, Jas. F. & Co. <i>Photographic Chemi- cals.</i>
Cox, John. <i>Printing.</i>	Marcy, L. J. <i>Sciopticons and Magic Lan- terns.</i>
Carbutt, John. <i>Photo-Relief Printing Co.</i>	McAllister, T. H. <i>Magic Lanterns, &c.</i>
Fairbank, Murphy & Co. <i>Mouldings, Frames, &c.</i>	Myers & Hedian. <i>Mirrors and Fine Arts.</i>
French & Co. <i>Lenses, Frames, &c.</i>	McCollin, Thos. H., <i>Photographer's Materials.</i>
Fitzgibbons, J. H. <i>Adhesive Picture Mounts.</i>	National Photographic Chemical Co. <i>Shaw's Patent Process.</i>
Fairbanks, Murphy & Co. <i>Passe-Partouts, &c.</i>	Pittman, S. E. <i>Mouldings, Frames, &c.</i>
Gatchell & Hyatt. <i>Stock House.</i>	Pattberg & Bro. <i>Frames, Mats, &c.</i>
Gennert, G. & Co. <i>Albumen Paper.</i>	Phenix Plate Co. <i>Ferrottype Plates.</i>
Haworth, J. <i>Photographic Materials.</i>	Peasel, Carman. <i>Stereoscopes, &c.</i>
Hirshberg, Bros. & Hollander. <i>Glasses, Frames, &c.</i>	Phillips & Jacobs. <i>Chemicals, &c.</i>
Holmes, William B. & Co. <i>Photographic Stock, &c.</i>	Ryan, D. J. <i>Stock Depot.</i>
Hale, Kilburn & Co. <i>Picture Frames, Mould- ings, &c.</i>	Stoddard, S. R. <i>Photographic Views.</i>
Hirshberg, Holland, & Co. <i>Photograph and Picture Frames.</i>	Scovill Manufacturing Co. <i>Morrison Lenses.</i>
Haworth, J. <i>Photo. Materials.</i>	Semmendinger, A. <i>Photo Plate Holders.</i>
	Trapp & Munch. <i>Albumen Paper.</i>
	Woodward, D. A. <i>Solar Cameras.</i>
	Walzl, Richard. <i>Photographic Stock, &c.</i>

THE

Photographer's Friend.

Vol. IV.]

JULY, 1874.

[No. 4.

Entered according to Act of Congress, in the year 1874, by
RICHARD WALZL,
In the Office of the Librarian of Congress, at Washington.

THE CHICAGO CONVENTION.

EVERYBODY is requested to be in Chicago by the 13th of July, that is, every one interested in Photography, for then and there is to be held a meeting which is promised to eclipse all the previous conventions of the N. P. A.

It is to be hoped that all will strive to be there, for there is no question about the good these meetings do; every one can see the advantage to be gained by the comparison of work, the interchange of ideas, and the renewal or formation of pleasant acquaintances.

The spirit of friendly emulation that these convocations inspire is enough benefit in itself, to say nothing of the many other good things; therefore we say to all "go to Chicago," in the language of Horace Greeley, "go West," or if already upon our western borders, come to that magical city which has just risen from its ashes, and which is one of the wonders of our go-ahead American civilization. See Chicago, attend the meeting, exhibit your pictures and strive to show you are not ashamed of your work or your profession.—Exhibit something, for by comparison you can best improve.

Every attention will be paid to your comfort, every facility afforded you for the dis-

play of your specimens, indeed unexampled inducements in space and arrangements, and a splendid chance to enjoy yourself, as some extracts from a letter from Mr. C. D. Mosher, who is on the committee, will explain:

"We have visited most of the hotels, and arranged with them for the accommodation of the members of the N. P. A. in July next, in a quite satisfactory manner, I think. Our hotels are nowhere excelled, we even think superior to any the members have patronized before, and we have the finest building for the exhibition the country contains, splendid art gallery, exhibition rooms, and every thing needed, under one roof. The hotels have reduced their prices to those attending the convention, and persons can be suited with any prices from highest to lowest. We hope to meet all our friends and many new faces, for we intend to make this *the meeting* of the N. P. A."

So leave the dark-room, fellow worker; turn over your printing frames, Mr. Paper; fold up your camera cloth, Mr. Poser; "put money in thy purse, and hence with me" to Chicago. "All work and no play makes Jack a dull boy"—so spare a little time and money, which will be many times returned to you, and be at Chicago on Monday, July the 13th.

A, in the direction A S and its apparent zenith distance will be Z A S, measuring the angle at A, but, if seen from C, (the conventional station at the centre of the earth) it will appear in the direction C S, with the angular distance from the zenith Z C S, so that Z A S—Z C S, or which is the same thing, A S C is the parallax. When the sun is at T, either rising or setting, its parallax is at its greatest, and in this case it is called its horizontal parallax. (Expressions of great satisfaction.) Now, here I have drawn another figger, to explain what I am about to say—(No. 2.)—Let E represent the earth upon which we live and commit photography; let V represent Venus, and S the sun. Next let C D represent a portion of Venus' orbit. Suppose a couple of photographers A B, situated at opposite sides of the earth, then at the moment when A sees the centre of Venus projected at F on the sun's disc, the other feller, B, will see it projected at G. (A voice: Good)

Next, suppose that A and B *could* instantaneously exchange positions, they would see Venus as suddenly displaced on the disc G to F or vicer worser. (A voice:—No, but they couldn't possibly exchange places so suddenly.) I said *suppose*. Next, if they had the means of noting accurately the places on the sun where this transition took place, i. e., the points G and F, by means of some micrometrical machine, then they could ascertain the *angular* measure of G and F, as seen from the earth. Now, since A G F and B V G are straight lines, and therefore make equal angles on each side of Venus, G F will be to A B, as the distance of Venus from the sun, is to her distance from the earth, or, as 68 to 27 nearly. G F therefore occupies on the sun's disc, a space nearly $2\frac{1}{2}$ times as great as the earth's diameter, and its angular measure is therefore equal to about $2\frac{1}{2}$ times the earth's apparent diameter at the distance of the sun, or which is the same thing, by the by, equal to five times the sun's horizontal parallax, therefore any error that may occur in measuring F G will entail only one-fifth of that error on the horizontal parallax

concluded from it. (A voice:—Oh here! what in thunder are you trying to get at, any way?) Why, the thing to be ascertained is, simply this, neither more nor less than the breadth of the zone W X Y Z included between the extreme apparent paths of the centre of Venus across the sun's disc, from its entry on the one side to its quittance on the t'other. (A voice:—The whole caboodle then, amounts to this: The observers A and B, must ascertain, with all possible care and precision, each at his own station, this path; where it enters, where it quits and what segment of the disc it cuts off.) Exactly; one way this can be done, is by noting the *time* occupied in the whole transit. For the relative angular motion of Venus being given from the table of her motion, and the apparent path being very nearly a straight line, these give us a measure of a colossal scale, of the length of the chords of the segments cut off, and the sun's diameter being also known with great precision, the breadth of the zone is found.

A and B must ascertain the instant when the first visible impression is produced, or the first external contact, also when Venus is just wholly immersed. Thus the mean of the internal and external contacts gives the entry and egress of the planet's centre. (A voice:—Is this so very difficult to ascertain?) Truly, for we have to take into consideration, the rotation of the earth, the eccentricity of its orbit, the accuracy of the observations at the same instant of time in different portions of the earth, the curvature of the sun's surface, the curvature of the planetis path, the refraction of light, and—well, well, that will do; you are ready to exclaim—such is the Glorious Transit, on Monday, December 9, 1874.

The average of human life is 36 years. One-fourth of the population die at the age of 7 years. Among 10,000 persons, one arrives at 90; and one in 100 lives to the age of 60. Married men live longer than single.

The yearly mortality of the globe is 8,338,333 persons.

178433

CURIOUS CUSTOMERS.—No. 9.

THE FIRST BORN.

To take up a golden pen, and dipping it into delicately rose-tinted ink, put it to beautifully scented paper, with the words "WELCOME, BEAUTIFUL LITTLE STRANGER;" and therefrom draw a touching picture of the beautiful blossom given to be a joy to mamma, and to stir the heart of papa to pride; to gracefully portray the loveliness of the dear cherub; to descant tenderly on his chubby parts, from the top of his tiny head, with the item of hair which is hardly worth mentioning, not being "heir apparent" as the infant is, to his father's domains, descending delicately as far as his little toes; thence meandering, as I warmed to the theme, to prospective views of his after career, to prophecy at least a President, a Commander-in-Chief, ship, or an Admiral-ship, or some other grand ship which should bear him splendidly over the troublous waters of life, would be fitting—but being a poor photographer, pens are wont to be scratchy and spluttery, and ink is gall indeed. Everything is gall indeed, to the mind of the indigent photographer. And being a photographer, babies are not likely to stir the mind to rhapsody; rather do they raise feelings of dire enmity towards the species and especially to the rising portion of the population.

Naturally enough, we view these things differently to the rest of the world, and babies which are to their parents and friends so many lumps of condensed and unalloyed sweetness, are to us, simply abominable nuisances, ranking first in the long list of thorns in the side.

No, doubt, as Byron sings, "*'tis beautiful to see a matron bringing her children up*" to the gallery. Only we can't see any thing but worry and annoyance in store for us.

The young gosling has to be unrobed and unrolled, untied and unpacked, and then most likely he sets up a lusty yell for nourishment, which has to be administered before

there is any chance for Mr. Camera to do any thing but fume at the delay. Until he runs over, the unfortunate little cherub is crowded; and when "the bottle" is put away, a churning process is commenced, (popularly supposed to put babies in a good humor, as conducing to their peace of stomach,) until certain alarming indications of fountaineous expulsions appear—when the youngster is pronounced to be ready to be operated upon.

Nurse thinks the dear "ickie sing" would look so pretty in her (nurse's) lap, but Mr. Camera, who has had some little experience in groups of this kind, does not look at all kindly on the suggestion. Happily mamma does not second nurse's proposal, and the consequence is that on the infant phenomon's being bolstered up in a chair, where it looks like a pillow, a sly pinch administered by the disappointed Bidy sets the child a-yelling till it is black in the face.

"Well, its poor 'ittle ducky darling—and didn't it want to be taken den—and didn't it want to give a pretty 'ittle picture to par den—and it shan't—bless its 'ittle heart den,"—and so on ad infinitum; until the poor photographer who has his plate drying up beside the camera is in despair.

Even the bellowing of babies must have an end, but in this case one trouble follows closely on the heels of the other; and as baby is pacified, nestling to its mother breast, it is discovered that the wretched infant is very sleepy—the combined effects of an infant gourmand's meal; the churning, enough to have converted a dozen quarts of milk into butter; and the after storm of childish woe has utterly exhausted the youngster.

What's to be done? Banging it about, seems to be the thing. It is thumped and bumped until an uninitiated and innocent observer would think all life would be banged away—but the baby comes up smiling and lively as a kitten, much to the amusement of Mr. Camera, (too poor to have babies of his own!)

The baby is, alas! only too wide awake! Every motion of Mr. Camera's hand is watched, every look toward the infant sitter is

hailed by that lively individual with a crow of delight as he wriggles and twists in the chair until nurse, (who has been placed behind to hold the child) declares she hasn't a bit of strength left.

"How delightfully good he is,"—declares the fond lips of mamma, who kindly adds to the difficulty of the occasion by standing in full view of the writhing and crowing little fledgling and talking to him in the Iocahoopoo language.

What a glorious time the artist has! How he perspires as he watches a fitting opportunity to catch the necessary three seconds of repose. How he doesn't get it time after time. How many plates are spoiled—oh, its grand fun, 'pon my life! That is, to all except Mr. Camera, and Biddy who has threatened to give her mistress notice on the spot, if this sort of thing continues much longer; that she was'n't hired for this style of nursing, &c., &c., &c., ad. lib.

Shall I draw the veil on this artistic scene? or shall we see it out?—You know what it is—a child too young to sustain the weight of its own head, of whom it is expected we shall get a Titian-esque work of art.

Perhaps I may be permitted to observe that of all the troubles, by the photographer to be borne, the "first born" sitter is one of the greatest.

WILLIAM HEIGHWAY.

AMONG THE LIONS.—Concluded.

BY DANIEL NO. 2.

Having recovered from the effects of my last interviewing visits, it struck me that a visit to some of the lions whose dens are located over the water, might be of utility in solving that ever recurring enigma, the photographic future. So depositing myself in one of those caravans, commonly called a horse car, I was quickly transported through ever varying scenes and smells, for it was along the borders of the East river, my route ran. Being miraculously saved from assault from the conductor, and not being robbed by any of the organized bands of pickpockets, I arrived safely at the Ferry, and depositing

my pennies in the hands of the crusty Cerebus at the portals, strode quickly on board a soon departing boat.

As I leaned over the taffrail of the swift moving craft, and admired the beauties of that land locked haven, with its numberless vessels, I thought of the happiness and comfort to sojourners in foreign lands, that photography has brought by means of views of familiar places and portraits of loved though absent friends. But here we are again upon the other side, not any time to spare, and Brooklyn all before me. I walk up its twisting streets until I see an inviting door-way, which announces "Billson, Art Photographer," I walk up the stairs, and enter a unique and handsome show-room; the genial Billson is on hand, and glad to see me, and his usual gentlemanly politeness is augmented, when he learns my errand; he takes me by the arm and he leads me to an alcove and leaves me a moment, while he gives some instructions to an assistant. I ponder as I sit there, with satisfaction, for I begin to see a chance of my question this time receiving an answer.

Mr. Billson soon returns, and directing my attention to a screen upon which he presently threw a reflection of a lady's head—

"A magic lantern," I said.

"Yes," said Mr. Billson; "here you have the picture of the future, the mode for the future, and the instrument for it," and he puts his hand lovingly upon the lantern by his side.

"Oblige me," he continued, "by lowering that screen." Now you see the head as it will be when enlarged in the solar camera. I make my negative and from it a reverse, place it in the lantern and show to my customers a splendid life size portrait of them; should it need retouching or alteration, I do it thus:—he took a crayon, and with a few deft touches improved the mouth and other points.

"There is the future," said he, "large work's the thing, no more paltry cards; in the solar camera, my only hope lies."

I was carried away with his enthusiasm,

and bidding him a gentle farewell, went down stairs, firmly resolved to get a lantern and make the fur fly.

A few steps across the street, and I was in the studio of Mr. G. Finical, Eastwind Pierceawl. Now every one knows Mr. Pierceawl and his *art* education, at least everyone ought. In I went, and soon he came out to see me; he is not quite so large as he *reads* to be, but he is big enough for first class work; I stated my errands after the usual exchange of inquiries, and I received an immediate answer.

"Daniel," said G. F. E. "you see the kind of work I am making, you see how I came here like the 'poor boy of the Mohawk,' and what am I now; where are the old fogies of this sequestered isle, I said 'I would seek westward for em,' but he went on.

"My boy, in card and cabinet work lies the only money, large work don't pay."

"Still," said I "there is plenty of it here," "and I looked on many finely colored paintings, pastels, &c., that hung around me."

"Of course," he replied, "I must keep up my standing, but mark what I tell you, pitch away your solar work, and stick to your small work, that's the game."

Here was a difference with a vengeance. I had just built my ideas so large they would not shrink so soon; was I to come down from "chiaro oscuro," to mere light and shade? 'Twas not to be done in a moment, and I entered my feeble protest. "But fame," said I "surely comes sooner from large work."

"Not a bit of it," G. F. E. answered, "a large picture merely hangs in your parlor, a favored few see it, but your dozen of cabinets circulates everywhere, dozens see them, they are a moving advertisement for you always."

I wandered through the intricacies of the desks, &c., bid my friend a kind farewell, and went off thinking my mission apt to prove barren, for each "lion" roared his own way, and there is *no programme* for the future.

But I soliloquized, some good has come from my interviews. I have seen some "jolly good fellows," and have proved the truth of the old adage, "many men of many minds, &c.," and though there are many more "great

guns" I might have called upon, enough has been interviewed, to prove at least the independence of the photographic character. Each one thinks for himself, and my mission being ended, I cover my head with the dark cloth, and subside behind my camera.

Hic Jacet, Daniel No. 2.

A Simplification of Photography.

BY SAMUEL FRY.

I AM one of those stubborn individuals who still persist in doing outdoor photography with wet collodion, in spite of the bulky paraphernalia required. The reason is simple: it is absolutely indispensable that I should know at once the result of my operations.

I use a light, two-wheeled spring van, in which I can work plates up to twenty-four inches; and, as time is always important with me. I have long sought an efficacious plan of leaving the negative, when developed, without intensification or fixing to complete it at home at leisure. By the system to be described I find the plate left in such a state that everything afterwards is better done in open daylight, thus giving a much clearer idea of the quality of the negative than in a yellow room. Those who once try this plan will not give it up. It supercedes and is much superior to any solution of golden syrup or glycerine to keep the plates moist, which I thought very good.

Take iodine one drachm, iodine potassium one drachm; dissolve in twenty ounces of distilled water. This forms a stock solution of the color of good old port, and for use may be diluted six times. When the plate has been developed and washed as usual, flood it with this dilute fluid, and keep it on about half a minute; then wash again, and put in the draining-box. The plates may be intensified at any time; but I prefer, on getting home, to let them dry in daylight on a rack, and if any further intensity is required (though this is not often the case) it is done either with iron and citric acid or pyrogallic and citric in daylight, and fixed as usual. I

can scarcely give to much prominence to the importance of this matter.

I can do far more work in the day than when I used to finish upon the spot; and this preparation is a great advance on the other mixture referred to.

Care must be taken not to keep it on too long, as an injurious effect is produced, difficult to describe, but soon observed; but with a solution of a light s'erry colour, there can be no fear if the time named is not exceeded. The finished plates differ in no respect from usual wet plates, except in a peculiar richness of colour.

The effect produced and desired must not be confounded with intensifying with iodide of potassium and mercury after fixation.—This is quite a different thing. For portraiture at home I use it daily, and it is a great boon, enabling me to get through with great rapidity.

I look upon it as a complete anti-fog; for I have never had negatives so invariably possessing complete clearness and transparency, and the largest variety of tones with just the right number of tones, as since I used this preparation.—*British Journal Almanac.*

On the Color of Negative Films.

BY F. WALLER,

Operator with R. Walz.

It is a fact known to almost every operator, that the color of the negative film has nearly as much to do with its printing qualities as its density, and while this has been noticed and commented upon, both in the foreign and domestic journals, there has been few, if any, theories put forward as to what chemical, or other action, the color is due, or why the color should vary so from time to time under, apparently, the same conditions.

The color which is conceded to be most desirable is the olive brown, and negatives possessing that creamy appearance produce better prints than those blueish or slate colored. Now as the color certainly has so marked an effect, it becomes of vital importance to ascertain what conditions give this color un-

iformly, or how this color can be uniformly produced upon negatives that have it not, without injuring them by forcing them.

Mr. Elbert Anderson, of New York and I have had some correspondence upon this subject, of which I propose to give the gist to the reader, hoping that while my friend or myself have not arrived at a definite conclusion as to cause or effect, the perusal of this article will stimulate inquiry in this direction, and that other operators will take note of their films, so that by comparison of ideas and results we may arrive at the true cause of colored films.

Now that all are striving so hard to obtain the softest effects and fullest detail, anything which adds to the printing qualities without interfering with the other essentials is of special interest. Mr. Anderson writes: "I have tried everything in the developer without effect. Do you think the strength of the developer can effect the film?" After experimenting on both sides, we concluded it was not the developer. I then wrote to Mr. Anderson and suggested that the desired color might be produced in some way, and mentioned chloride of gold as giving a fine color, but he soon found out a better plan, and wrote: "You can get any amount of olive brown on your films by flowing the plate after fixing and washing with a weak solution of cyanide, or by adding enough cyanide to your hypo to fix in half the time."

I found it to work admirably, securing good colored films in that way. But neither Mr. Anderson or myself were quite satisfied, because we have not as yet, found the cause of the color, as it, at times, appears without any extraneous aid. So we have resumed our experimenting. Having seen it stated that blue films came from cadmium collodion, brown from potassium, we experimented with several kinds, also with the bath in all conditions, strong, weak acid and nearly neutral, without marked effect. Different acids were also employed in the developer, but this seemed not to alter the color.

I was at first inclined to think it lay in the condition of the bath, and that the stronger

the coating of iodide of silver, the browner the film. But experiment did not prove this. The time of exposure was then tried, but I found upon short-timed negatives just as good a color as upon full-timed.

I am rather of the opinion that the newer the fixing bath, the browner the film, and when the bath is full of hypo-sulphate of silver, *that* effects the color. But I have not as yet made a thorough trial.

We all have noticed the dull and slaty look a negative has which has been left in the hypo and forgotten, then the hypo had some coloring effect. Perhaps the reason we sometimes have good colored films and at others poor, rests with the age of the fixing bath. Let us hear from you, gentlemen of the dark room, and give us your opinion of the matter.

Our Photographic Portraits.

MR. BERNARD CRACROFT, one of the wittiest and most acute of modern British essayists, is the author of an article, originally contributed to the *Saturday Review*, on the "Art of Appearing Like a Fool with Propriety." It is full of the fruits of the delicate observation of human nature, and of a most gentle and wise philosophy. We commend it to any of our readers who contemplate going, in cool blood, to have their photographic portraits taken. We know of no undertaking more trying to the average dignity and self-respect of, at least, the male portion of the human race, and of no process more calculated to puzzle those who like to trace some connection between results and the means employed to produce them. Certainly, photographic portraits, as now taken by skillful operators are a very pleasing thing, and not less surprising than pleasing. They are often attractive on account of the obvious delicacy and fidelity of the workmanship, and the evidences they afford of the manipulation of trained hands. But their attractiveness is by no means of this kind only. They are often very complete expressions of the character of the subject, which they present with simplicity and refinement. We have before us at

this moment the portrait of an old gentleman, an artist, which is exquisitely true to a nature of the rarest purity and grace. The gentleness, the elevation of a mind wholly given over to the contemplation of the beautiful and the pursuit of a difficult and lofty art; the strength of an enthusiastic spirit; the animation flowing from a native shrewdness, keen sense of humor, a lively sympathy with human feeling, and a spice of vigorous but controlled combativeness—all these are in the picture, as well as the minute markings in the face of old age, the beauty of a snow-white beard, and the dignified carriage of a form broken with years and suffering, but sustained by a firm will. The gallery of the gentleman who produced this portrait is full of pictures of equal interest, and very varied in character. Actresses, singers, young girls, old women, fops, artists, politicians, students, rouds, clergymen, millionaires—the scores of people one meets on Broadway—are to be seen, many of them with faces marked by characteristic expression or the equally characteristic want of it.

What inspires with wonder the observer who ascends from these to the operator's room, is how all this array of vivacious and expressive faces was turned out by the apparently barren and incongruous machinery of that illuminated den. The torn and rickety reflecting screens, the dingy velvet chairs, the rocks of wood and paper worn by the stream of human forms ("a continual dropping that weareth away a real stone,") the abominable racks and grips of iron—all these inspire one with a horrible sense of artificiality and arrangement entirely incompatible with freshness, or ease, or grace or naturalness. This feeling is intensified when the observer is fairly "posed," his head twisted as it was never twisted before, unless by the photographer's merciless hands, and as it would never remain were it not for the iron griffin that holds him in its unfeeling grasp, his eyes directed to a fixed point, and his whole system rebelling against the silent, rigid, despotic disposition of himself to which he has submitted. The skillful artist, with an occult

purpose which one feels is doomed to disappointment, bids you to give your countenance a "little more animation." You grin in a ghastly way at the suggestion, when your sense of mortification at the figure you know you are making is broken in upon by your tormentor, who tells you with a comprehensive gesture: "That's it precisely! Now let that dissipate into a genial smile, and I'll give you a good one." Mentally you remark that if he does give you "a good one," it will wear an expression of mingled idiocy and rage.

Yet the chances are nine in ten, if your photographer is among the best, that he will produce for you a portrait in which your friends will find a dozen different phases of your character. His experienced eye perceives the means of reaching the effect he is in pursuit of in arrangements that your uneasy consciousness condemns, and against which your pride rebels. Perhaps a rational man ought to be a little rebuked, a little touched with humiliation, at the reflection that he knows so very little about how he really looks. The conviction that one was really appearing with as much dignity and grace as were natural to him, when he felt that he was looking constrained and silly, suggests the awful possibility that when one appears to his inward eye all that he desires, he may be the very reverse to the impartial observer. There is a good deal of conceit in every kind of behavior in the clutches of the photographer. The man, if not the woman, who can be unaffected and unconscious, who can feel that he don't look as if he cared for his appearance whether he does or not, to whom the photographer and his complex machinery for "posing" are only matters of study for a philosophic mind, is not a common phenomenon. Our old artist friend, whose bright and placid portrait we have praised above, may be one of them. But even the record of his consciousness might not sustain us in that bold assertion.—*New York Times*.

Sloth makes all things difficult, but industry all things easy.

German Photographers' Association, New York.—Washing of Prints.

Several months ago, when Mr. Kurtz returned from his European trip, he spoke about Mr. Albert's, Munich, method of washing prints by means of a douche, and stated that he was impressed so favorably by it, that he would introduce it in his new gallery, then in course of erection. This he has done since, and the satisfactory working of it has induced Messrs. Chas. Cooper & Co. to wash their prints on the same principle. Mr. Kleinhaus, from the above firm, explained the *modus operandi* at the last meeting:

After fixing, the prints are put in a flat trough, the bottom of which consists of grooved plate glass, and is in an inclining position, to allow the water to run off. Above this trough are several douches, connected by hose with a water pipe, running along the ceiling. To prevent the prints from being washed away from under the douches by the force of the water, they are put on half cylinders of glass, about 20 inches in diameter for larger ones, and on glass rods for smaller prints. When placed on top of these the prints will not slip away. After being washed on both sides for about five minutes, the silver test for hypo, as lately provided, fails to show any trace of it. Generally after this first douching the prints are thrown in a tank with running water, till the whole lot is got through with.

CHROMOPHOTOGRAPHS.

Mr. Kraus, from Karlstadt, N. J., exhibited several double photographs, or as called by him, Chromophotographs. They have a very pleasing effect; and, although the idea is not a new one, the process of working them is considerably improved. Two prints are made from the same negative, one on albumen, the other on plain paper, which latter one is only printed far enough to show all details. By any varnish, thinned a good deal by spirits of turpentine, the albumen print is made transparent and fastened to the inner side of an oval convex glass. This is done best by a thick mastic varnish, or any

colorless gum, as Canadian balsam, p. s. Care has to be taken in this operation to get rid of all air bubbles. Another oval convex glass is put at the back of this print, and the plain paper one is moved behind this glass, till both prints appear like one. Then a piece of white card-board furnishes the back, and the whole is fastened together around the edges by sticking paper, and put in a suitable frame.

For coloring these pictures, the prominent features as eyes, lips, and the finer details in the draperies, are colored with thin water-colors on the back of the transparent print, the rest is done on the plain print by dry colors being rubbed on pretty strong.

Mr. Lewis exhibited several Imperial Cards with the Rembrandt effect. They showed a remarkable progress in his work, and were duly admired.

EDWARD BOETTCHER,
Corresponding Sec'y.

Notes on the Fading of Porcelain Pictures.

ON coming across an old note-book of mine, in which some remarks were jotted down during the course of some experiments with the collodio-chloride process on opal glass, I thought a few remarks gleaned from these notes might be of service to those of your readers who may still be practicing this charming yet, judging from many of our fraternity's exhibitions, neglected process.

The point upon which I intend particularly to draw attention is that of the fading of this style of picture; for if any means of rendering permanent any of our productions are hit upon the knowledge of them conveyed to others may be acceptably received. But in these days of search after sensational processes, in which there may or may not be any originality, it is hard to say whether or not photographers are a class of beings who do not believe in the value of anything unless they have to pay considerably more for it than the price of a number of this Journal. As an instance of the absence of information

(which I hope is rare) which photographic literature is intended to obviate, I may mention the case of a photographer buying as a secret process the one now under discussion, and that very recently too.

The sources of fading in this process are not very apparent, for in it no other materials are used than those by which our negatives are produced. As to the permanency of these there is but little dispute, for the substitution of the chloride for the iodide and bromide of silver can have no such action; therefore, for all purposes they may be looked upon as identical in principle, and any source of fading may be classed under two heads, viz., when fading is such as may take place in any negative, but so slight as to escape observation; and, on the second count, to such as is due to some materials used in the one not generally employed in the other.

Attention may first be drawn to the employment of a substratum of albumen, which is used in both this and the negative process. That this is a source of fading with the collodio-chloride has been pointed out before, yet collodio-albumen negatives have proved to be as permanent as any in my experience. It may, therefore, be predicted that negatives in which the albumen substratum is employed will not sensibly deteriorate, but the difference between a positive viewed by reflected and a negative used by a transmitted light is at once apparent; for a very slight yellow tinge in the latter would have no injurious action, but in the former would at once destroy the purity of the whites, and hence destroy the picture. No matter how the use of albumen aids in the production of a warm, velvety tone, and keeps the picture on the plate, it will be wise to avoid it.

Another source of fading is one which I never expected to find, and quite took me by surprise. A sheet of opal glass was coated with ordinary varnish—a good and, practically, colourless sample. Part of the plate, after coating, was covered with an opaque material and then exposed to the sunshine for a week. On examination the exposed portion was sensibly of a yellowish colour, and when

the varnish was dissolved off with alcohol the plate had again its pure white surface. As the varnish had been in use for negatives it was thought possible that it might have become contaminated with something washed off the negatives. To test this a fresh bottle was opened and the experiment repeated, with the same result. Some samples of varnish show this in a lesser degree than others, and one that was used maintained its transparency altogether. The experiment is so easy of execution that it would look like advertising the wares of others to mention any names. Some pretty effects may be obtained by adding to the varnish some colouring material that is soluble in alcohol; the yellowness may then be neutralized, and a warm bloom given to the white.

The use of hypo as a fixing agent was found to be a source of fading. It may be fancied that proper precautions were not adopted to eliminate this body; yet, when the modes of washing employed are described, few, it is apprehended, will be of that opinion. The pictures were washed in running water for twenty-four hours; others were suspended so as to be just below the surface of the water contained in a vessel which had a fresh supply of water every quarter of an hour, the pictures being well drained between each change, and having about twelve changes. Still, an exposure to the sun caused a deterioration of the whites; and, more strange yet, when the collodion film was dissolved off a yellow stain was left on the parts that had been exposed to the light which only nitric acid would remove. It was thought that this source of trouble could not be removed, until ammonia as a fixing agent was tried, and, with the most severe tests, no fading was found. The plates were immersed in a dish of ammonia fort. instead of the usual hypo, washed for a short time, and a permanent picture was the result. I have a picture so treated before me now that has been in parts exposed to all the changes of light incidental to six months of our summer light, and no difference can be detected between the exposed and unexposed portions.

Opal pictures, from their style, require but little pushing on the part of the photographer to ensure the sale of an article that pays well. They have a beauty peculiarly their own, and meet a want that I know of no other means of applying; and if what has been written has any tendency to revive a taste on the part of photographers for these pictures, when permanency can be assured, its end will be accomplished.

W. E. BATHO.

British Journal.

OUR ILLUSTRATION.

THE picture which adorns this number, is from the studio of Mr. Frank L. Stuber, Bethlehem, Pa., who once before illustrated our magazine, and whose unique and original style will be recognized by those who remember our *prize* picture.

These pictures are among the very best specimens of the new departure in the art, where the endeavor has been made to break away from old-time ideas and the stilted notions of position and accessories, which has only too deep a hold upon the photographic mind. In these illustrations will be found a successful attempt toward the highest art, *i. e.* the depicting of nature; and the easy poses, life-like attitudes, together with artistic lighting, will appeal to all lovers of the true and beautiful. Beside all these things, the chemical effect and mechanical part of the picture are all that can be desired, showing Mr. Stuber to be "*au fait*" in all the minutia of the business. We would commend these pictures to the careful study of our readers, as there is much in them worthy of imitation; and from the ground-work of ideas thus obtained, the earnest operator can do much toward his own and the Art's advancement.

As Mr. Stuber says, he is himself but a student, being a young aspirant to photographic fame, but like all who work with a purpose, Mr. Stuber has built up a business and a name in the State where he resides, that older photographers would gladly attain.

The prints were made in the printing de-

partment of the National Photographic Emporium, and we can safely say we are proud of them. When it is considered the quantity required, they will compare with the portrait work of the country generally. The formula used both by Mr. Stuber and in the printing department, are the usual ones, and have been many times published. Everyone now knows that receipts without the requisite *skill, care and cleanliness*, amount to nothing.

M. Chevreul on the Invention of Photography.

AN essay, written by the enlightened Secretary of the Académie des Sciences, and by a veteran *savant* who has from the first taken a deep interest in our art-science, deserves the notice of every photographer. For a long time past, M. Chevreul tells us, he has intended to write the pamphlet he has given to the world, for he has always considered that the claims of Nicéphore Niépce to be one of the principal inventors of photography have not been justly recognized. The author considers that we may divide sun-painting into three main sections, and apportion to each one an inventor, thus:—

Heliography. Daguerreotype. Photography. Nicéphore Niépce. Daguerre. Fox Talbot. And as Niépce was the first to produce pictures from nature in the camera, he should enjoy the honour of priority.

Arago, who brought forward Daguerre's invention in the Chamber of Deputies, characterised all previous efforts at sun-painting as being exceedingly defective, and possessing immense inconveniences. He ignored *in toto* Niépce's name, and Gay Lussac, who announced the invention in the Chamber of Peers, made the same omission. Indeed, although Nicéphore Niépce produced permanent photographs fifteen years before, which had been shown to many scientific men, not a soul breathed his name at this eventful moment. The invention of Daguerre was, indeed, vaunted at the expense of Niépce.

"It was in 1839 that an Englishman, Mr. Bauer, a Fellow of the Royal Society, who

had known Nicéphore Niépce in 1827 in London, made known some circumstances which were greatly at variance with statements of Arago. 'Under these circumstances,' says Mr. Bauer, 'I cannot think M. Niépce was able only to give an imperfect idea of the matter fifteen years ago, for the specimens brought by M. Niépce, and exhibited in England in 1827 (and of some are still in my hands), were all quite as perfect as the productions of M. Daguerre, described in the French Journals of 1839, and yet this is the first time that the name of M. Niépce is mentioned.' Mr. Bauer had, in fact, seen, in 1827, what Arago had not been shown till 1839. Nicéphore Niépce, therefore, was not unsuccessful, and thus Daguerre was not the inventor of the permanent reproduction of objects in the camera. I will go further, and admit the opinion of Arago. How was it, then, having shown the importance of the method of M. Niépce and the excellence of that of M. Daguerre, that he asked for a pension of four thousand francs for the son of Niépce, instead of only a pension of six thousand to Daguerre alone?"

M. Chevreul then goes on to state that, so far as he himself is concerned, his opinion has never varied on the respective merits of Nicéphore Niépce and Daguerre. He reviews the life of Niépce as depicted by M. Victor Fouque,* and afterwards states that three things appear to him patent:—

"1. That the honour of originally discovering heliography belongs absolutely to Joseph Nicéphore Niépce, for he established, most perfectly, the conditions necessary for the realization of the discovery."

"2. That Daguerre has the incontestable merit of substituting for bitumen of Judea, the substance sensitive to light, iodised silver, which was much more impressionable."

"3. Finally, that Talbot enjoys the incontestable merit of substituting for the metal or glass employed by Niépce and Daguerre, paper, by reason of which Daguerreotype is at the present day no longer used."

*See "A contribution to the History of Photography" by Mr. Baden Pritchard, page 133, vol. xvii, PHOTOGRAPHIC NEWS.

It was Nicéphore Niépce who was the first to fulfil the former of two conditions necessary for fixing an image in the camera, viz., the employment of substance sensitive to the action of light, which, after having been applied to a solid surface, is exposed in the focus of a camera, where an image falls on it; secondly, the employment of a light capable of dissolving away all the sensitive matter which has not been modified by light, and leaving that which has been acted upon.

Nicéphore Niépce, after many years of experiment, gave the preference to bitumen of Judea as the sensitive body, which he applied to a metal plate, penetrating the material in the first place with the volatile oil of lavender, and then dissolving it in a mixture of one part in a volume of oil of lavender, and nine parts of petroleum oil. The plate coated with this solution of bitumen was, after evaporation, exposed in the camera. All those portions of the bitumen impinged by the light then lost their solubility in the mixed oils of lavender and petroleum, and, therefore, on the plate being afterwards plunged into the oils, on its withdrawal from the camera, the bitumen not acted upon by the light dissolved away, while that impinged by the rays preserved the outlines of the image, and the modification brought about being in proportion to the energy of the rays acting upon the film, lights and shadows were obtained of different tones, which produced an image in relief.

This was Nicéphore's method of operating; but this was not all the discovery. He said to himself:—"If the bitumen which covers the metal represents the image in the camera, should I not be able, by etching with an acid the metal laid bare by the development of the image, to obtain an engraved plate of such a nature that by subsequently removing the altered bitumen, which protects the metal from the corrosive action of the acid, the image would appear, the reliefs in the metal being the high lights, and the hollows the shadows?"

Experiment justified his conjecture, and a portrait of the Cardinal Ambroise was repro-

duced by Niépce, in 1824, upon a plate of tin.

Thus, as M. Chevreul shows, Niépce was not only the inventor of heliography, but also of photo-engraving.

In regard to the invention of Daguerreotype, M. Chevreul reminds the reader that Daguerre had no hand in the perfection of the camera and lenses employed, the construction of the former being due to Wollaston, and the achromatisation of the lense to Chevalier. That Daguerre made any successful experiment in heliography during the lifetime Niépce, there is no evidence whatever to show; whereas it is proved beyond doubt that the latter made his partner acquainted with every favorable result he had obtained. When the compact was made between the two, it was distinctly laid down that any invention hereafter should be made known to the public under the name of Niépce-Daguerre and this, as all the world knows, was not the case, when, in 1839, Daguerre published his process. The agreement stated that M. Niépce, on his part, should make known all he knew, and M. Daguerre was to contribute a new description of Camera and his labour. As a fact, it was only the latter he contributed, for the new camera, M. Chevreul points out, was not due to Daguerre, but to Wollaston and Chevalier.

M. Chevreul compares the two processes of Niépce and Daguerre as follows:—"The difference between the processes is this: in that Nicéphore the image appears on treating the plate on its withdrawal from the camera with a solvent of mixed oils, while in Daguerreotype the image, before being submitted to the action of hyposulphite of soda, is first exposed to the action of mercury, which renders it visible. If the process of Daguerre is of incontestable value, and if he has recognised the sensitiveness of the iodised plate, it is also certain that Nicéphore was the first to have recourse to iodine in his heliographic work; and if he did not employ it to such an extent as Daguerre, still for the latter the difficulties would have been much greater if he had not been aware of iodide silver having been used in Niépce's heliographic work.

This remark alone suffices to show how different Daguerre's position would have been had he been ignorant of the heliographic process of Nicéphore Niépce, or, having known it, he had been ignorant that iodine applied to silver might contribute to the progress of heliography.

However this may be, Daguerre has related in a letter printed in the proceedings of the Academy, on the 23rd September, 1839, how he discovered the sensitiveness of iodised silver to light, and the employment of mercury in rendering the image apparent after the plate had come out of the camera. He states he discovered the sensitiveness of iodide silver to light in the month of May, 1831, and the action of mercury vapour in 1835. This letter is far from being clear and precise, but his intention in writing it is evident; he pretended having improved the heliographic process of Nicéphore by substituting the residue of the distillation of the oil of lavender for bitumen of Judea; and in the second place used mercury vapour with the intention of employing the iodide plate treated with mercury in order to engrave it by means of an acid. In fact, he concluded that heliographic engraving would always be imperfect. We shall see that the inventor of Daguerreotype was not happy in his conclusion; but this letter tells us that an exposure suitably prolonged of the iodide plate in the camera will give an inverse image. If I rightly interpret Daguerre's letter when he states this, he must have been ignorant of the fact that the image is already produced upon the plate before mercuric vapour renders it visible.

M. Chevreul insists very much on the fact that iodized plates were employed by Niépce, and that his use of them naturally led to their being afterwards experimented with by Daguerre. This is one more point to show how much Daguerre had to thank Nicéphore Niépce; while heliography may be considered as the original discovery of one man. M. Chevreul is of opinion that the same cannot be said of Daguerreotype, which although when first made known was a complete and practical process, required material improve-

ment at the hands of Chevalier, Claudet, and others, before it was quite perfect.

To Fox Talbot, M. Chevreul also assigns the position of original inventor, for although several have contributed important modifications, yet photography may be considered Talbot's method still. He owes nothing to Daguerreotype, and, as M. Chevreul truly says: "Daguerreotype appeared for several years destined to last forever, especially after the improvements to which it was subjected. The photography of Talbot, on the other hand, received coldly at first, improved little by little, and at last replaced Daguerreotype altogether." These words, coming from so great an authority, we should never forget.

The author finally considers that to Niépce indisputably belongs the honour of having been the great discoverer of sun-painting, or heliography, for he was the first who showed the possibility of fixing an object secured in the camera.

His concluding words are: "The rapid improvement of original inventions is in the interests of society; but in recognizing them, we should always speak in favour of the inventors, and place a wide interval between their merit and that of the authors of mere improvements."—*Photo. News.*

Tincture of Iodine for Improving Negatives.

FROM a remark which fell from Mr. Frank Howard at the last meeting of the South London Photographic Society, relative to the method of applying tincture of iodine so as to remove a background or any other portion of a negative, we are led to infer that the best method of applying this substance may not be generally known.

We may premise that the action and object of an application of the iodine solution to a negative are the following: When by means of a camel's hair brush or otherwise it is applied to the image the atoms of metallic silver which formed the picture are acted upon by the iodine, and are converted into iodide of silver. Now, as metallic silver

is not soluble in a weak solution of cyanide of potassium, but as iodide of silver is soluble, it follows that the application of this menstrum will instantly convert into clear glass every portion of a negative that has been touched by the tincture of iodine. Its use, then, will be obvious. Everything in a negative not desirable to be retained can be completely removed—a tree, a house, a background, a restless baby, or any other objectionable member of a group.

We have spoken of "tincture" of iodine. In point of fact, the iodine is used in the form of a *solution*. It may be difficult to define what a tincture really is. "Tinctures," says Cooley, "are solutions of the active principles of bodies, obtained by digesting them in alcohol more or less dilute." If we accept this definition, the so-called "tincture" of iodine is merely a *solution* of iodine in alcohol, and not a tincture at all. But without dwelling on the accuracy of the nomenclature we may at once say that the best form in which to use iodine for the purpose in question is the aqueous solution. This may be said to be another contradiction in terms; for if any one attempt to dissolve iodine in water we will find that matters will not at all progress in a satisfactory manner, iodine being scarcely soluble in water, as seven thousand parts of water are required to dissolve one part of iodine.

Iodide dissolves very freely in alcohol, ether, chlorform, sulphide of carbon, petroleum, and in solutions of the iodides. It is the latter of these that we recommend as a solvent when the solution is to be employed in acting upon a negative. Drop a crystal of iodine into a little water and no visible change takes place, the water remaining as clear as before; but on adding a crystal of iodide of potassium it will be found that, as soon as the latter has reached the bottom of the vessel, the iodide immediately becomes affected and dissolves readily, and the solution becomes of an intensely-deep red color.

Mr. Howard's method of applying this solution to a negative is by means of a piece of blotting-paper cut to the size of the por-

tion intended to be acted upon; for when applied by a brush he finds that there is a tendency to spread beyond the part touched, which expansion infallibly proves fatal, as every part so affected eventually becomes entirely denuded of the silver forming the image. But we find that if the iodine solution be thickened by the addition of a small quantity of mucilage of gum arabic—say a little more in proportion than is contained in common writing-ink—all tendency to spread is destroyed. The solution may be applied by means of a delicate hair pencil, and in the most minute specks, lines, or stipples; and, after the clearing-up application of the cyanide, these specks and touches will be found clear and sharply defined, showing that no extension has taken place.

A method of making compound or combination negatives based on the property of iodine of removing an image or a part of an image from a negative was described in our ALMANAC for 1871, and since that time we have operated upon many pictures with great success. The principle consists in first clearing away any desired portion of a negative by means of the wash first described, or by having a black background in the picture so as to produce clear glass in the negative; and then, having floated off the film from a second negative, which contains some figure or object that is to be introduced in the finished print, to attach it to the first one in its proper place. This is best effected by the aid of a flat dish of water, as it permits of the process of transfer being kept under complete control. When the under film is separated from the upper one by means of a varnish of India-rubber in sulphide of carbon, or, indeed, of any kind of varnish impervious to water, the iodine solution may be applied as freely to the upper or transferred film as it was to the lower one.

Many useful applications of the power thus conferred will suggest themselves to an intelligent photographer.—*British Journal*.

Some books are to be tasted, others to be swallowed, and some few to be chewed and digested.

UNCERTAINTY.

BY WM. HEIGHWAY.

DOUBTLESS, it has been a subject of regret with all of us that the condition under which we daily work are not of more reliable character, and with this feeling many are content to excuse much lost labor that were otherwise attributable to want of care in our own working.

It is not to be denied that we woo a very fickle goddess, all our chemicals possessing characteristics with which few are even imperfectly acquainted and of which most of us know nothing. The light, our great servant, and so often the master, who dallies with us and leads us into such awful scrapes is, to the artist himself, a source of much anxiety.

Photography is yet in its infancy, and by dint of close research and hard study on the part of those who deserved better thanks than is accorded them by our busy brotherhood, we are being daily instructed in the various agents we employ in our work, and our successors may have as perfect knowledge of the laws governing photographic chemicals as the student of older arts possesses of his.

First among the trials of the learner, and most difficult to his bewildered senses, is the apparently contradictory teaching of those self-constituted Sir Oracles. Collectively these book-makers have produced an ingenious tangle, and happy is the man who, following their teaching, escapes with only a "hundred days in a fog." Taking the best of these utterances he will find more than one unpracticable piece of advice.

Perhaps even worse than the following of a blind teacher, because one can always remedy that by "going it blind" on one's own account, even worse than the uncertainty of teachers' teaching, is the ever-varying quality of our chemicals, and without strict analysis can we approach anything like perfection of manipulation. *Cannot some firm adopt a standard sample of salts and solu-*

tions, &c., and thus earn the gratitude and patronage of the entire profession?

In one respect there is uncertainty where it is not necessary, and that is ourselves. Do we make the best of a bad state of things? and are not our chemicals often blamed when the fault lies with us alone?

PHOTOGRAPHY IN VENICE.

Most of the readers of this Journal have heard of or seen the wonderfully-cheap large photographs which travellers bring home from Venice, and which are purchasable in this country even at lower prices than we seem able to produce them. Possibly to most people such pictures have only suggested thoughts of wonder as to how these things could be done so well and yet be so cheap. But in some, no doubt—perhaps in many—photographs of Venice have power to stir other thoughts, and the marvellous art depicted therein leads the mind to forget the present in the past; for Venice is no city of to-day. The Gothic tracery and profuse ornamentation—the domes and pinnacles and towers that catch the eye everywhere, and shimmer in the gondola-broken waters of her canals—are no stuccoed hypocrisies born of the *nouvelles richesses* of our time. The great and beautiful and noble monuments which everywhere greet the eye in Venice are the memorials of a beautiful past—a past of artists and art-loving people who had a joy in their work, and an estimation of true art such as it were vain to look for now; and the fact that all this beauty of stone and painting is of the past is saddening, too. Venice to-day has long descended from her kingly state; the mighty republic is dead, and the last of her princely merchants has long slept in his gilded tomb. With the discovery of the Cape and of America the commerce of the world took to other routes, and left her lagoons empty of the vessels that bore to her warehouses the wealth of the East. Paul Veronese's "Queen of the Sea" is now but a beggar—a beggar who clings still to the kingly mantle of ermine that be-

tokened the grandeur of her ancestors. The flash of jewels and sheen of glittering equipages have gone; but, as one wanders through her deserted thoroughfares, one meets everywhere in those palaces, those churches and museums, the costliest gifts of art. They are strewn on every side with the most lavish hand, and these force on one's mind most painfully the littleness of the art of the present. There is hardly sufficient taste left to appreciate these noble memorials of a noble people; the artists themselves seem to be gone with the means which sustained them.

According to a recent writer in the *Photographische Mittheilungen* everything in Venice is rapidly sinking into decay. Fire and the attritions of time are, on the one hand, attacking one and another of the art treasures of the city of the Lagoons; but worst of all, the water is slowly undermining its foundations. Every spire in the city—even the column of the lions in San Marco itself—shows noticeable deviations from the perpendicular, and there the leaning tower of Pisa might find a hundred rivals.

In such circumstances we can well believe that the mission of photography in Venice is a great one. The surpassing richness of its art treasures in stone afford a scope there for the photographer's art which nowhere else exist within the same compass; while the intense interest with which every corbel and boss, let alone a'most every palace or pillar within it is in every case viewed must be heightened, and the zeal to obtain adequate record of its art spurred on by the thought that the city, having no more place nor business in the affairs of the world, is slowly settling into a watery grave. Photographs of Venice have a many-sided interest therefore to many people, and not the least is a jealous consideration as to whether the memorial work which photography is so peculiarly fitted to do is adequately fulfilled. That the silver prints supplied so cheaply have been given to fade is now of smaller consequence; for if the *first work* be well done—if the negatives are the product of thought and loving care for the art treasures amongst which the

humble copyist works—that defect cannot now, with the permanent processes we have, bar the way. We believe photography is as things go fairly represented in Venice, and that on this score, therefore, there is not much to lament. Yet it is a wonder that not one of our leading English professional photographers have ever devoted himself to the task of thoroughly illustrating Venice; and we cannot help thinking that for those smaller kinds of photographs which we on the whole love best there is still room for such an one to do good work. Whether any one will be induced to consider that point we cannot say; but we present here some account of the state of architectural photography in Venice, in order that our readers may judge for themselves whether or not its art treasures have been copied as they ought to be.

It turns out that, in point of fact, there are but two photographers in Venice who stand out in any prominence as men worthy to carry out this great work. One has a name of much celebrity, for, as Dr. Vogel's correspondent remarks, few travellers go away from Venice without a pair of Naja's photographs as a memorial; and the other, S. Ber-toja, is tolerably well known also, but it is chiefly for the curious "moonlight effects," *a la* Byron, which he labours to produce. For the honest object of seizing transcripts of Venice as it is in all its lavish art and beauty there is but one really prominent and presumably capable man residing there—Signor Naja. Let us see how he goes to work. In the first place, he chiefly relies on dry plates for obtaining his interiors. This is probably largely necessary in buildings like the church of San Marco, and probably in many more private buildings, on account of the feebleness of the light. It is a very common thing to stumble across one of Naja's cameras set up in some such place, with the lens open exposing a plate by the day long, and unattended by any operator.

Naja's mode of working is of the simplest. He has no grand establishment, and only a small studio with a high side light, which he

devotes to copying paintings; and even that is but seldom used, for the magnificent paintings in Venice have usually to be taken on the spot where they hang, or the walls where they are painted, and he secures such copies of them as he can by the same means that he takes his other views with—dry plates. The patience and perseverance which he exhibits in this work is certainly very commendable. He appears to have a number of cameras of a large size—for he works plates the size of a sheet of photographic paper—which he places here and there about the city, and allows the films to remain exposed sometimes for days, in order to get a picture. The results, whatever process he may employ, are certainly often very fine, in spite of this mode of operating. There can be no question that it is a trying thing to sharpness and clearness of definition to have to expose a plate three days, as Naja did in the case of Titian's *Ascension of Mary*. In some cases the exposure has been prolonged to five days. Where paintings are in question this may be possible without blurring; but if Naja adopts the same plan with buildings, and takes columns and carved work on which the light must move round during the day, so as to blur and confuse lines and shadows, we can hardly think that the representation he is thus able to give of the interior of a building will prove very satisfactory.

Signor Naja does not, however, confine his labours to Venice. On the contrary, he extends them to the neighbouring cities of Bologna and Verona, and even to Florence—each of these enough for any single man to undertake if the work is to be done lovingly and well. His works, we are told, do not pretend to have any artistic merit, and we must not look for aerial perspective, light and shade, softness, and other similar things in his pictures, for they are not there. What is this but saying that his work is not adequate to the mission photography has in such places? How possibly could the colonnade of the Doge's palace be rendered, or the tracery of its council-room windows, without proper light and shade? You might use

plates as large as an opened-up sheet of *The Times*, and yet the result would be unsatisfactory if the picture were without the relief of proper light. Details may seem full in ill-lighted pictures, but they are never accurate.

The fact appears to be that, as far as Venice is concerned, photography is too cheap to be well done, in an artistic sense. If you can buy a 10 x 12 picture for two francs it is clear that the margin must be so slight as to make it utterly impossible for any man to do anything but the crudest and most mechanical kind of copying. Proper light, proper lenses, or proper chemicals can hardly be within the power of the men who are ground down to such a low level. They cannot wait for the first nor pay for the others. Nothings is, perhaps, more significant of the sad decay into which Venice has fallen than this token of the depression of the art there; but because those on the spot do work at so low a rate of remuneration we must not conclude that persons having their centre of business elsewhere could not do finer work and, freed from local stagnation and the pressure of local poverty and decay get prices for it.

There is a considerable genuine revival of architecture amongst us in England, and whatever helps that revival in the way of lessons from the past is not a little sought after. But we have ecclesiastical lessons in plenty elsewhere; it is domestic art which lags behind, and that is just what Venice is the most perfect in of all the cities of the world. It is a great storehouse of domestic art and decoration, and as such, although written about and admired and sung over, has never been properly explored with the pencil.—The work is beyond the power of an ordinary artist, but the camera might accomplish it; and we think there is a field there for some one who has the resources and the skill to do a work which, in many cases, if it be not done soon will be beyond the possibility of being done at all. What is wanted is a series of exquisite cabinet negatives of Venice—of its monuments, its successive orders of build-

ing, its various styles of ornamentation, and its general panoramas. These, with the resources now at the command of photography, might be enlarged or reduced at will, and multiplied to any extent at small cost. Much as Signor Naja has done his system is cumbersome and altogether antiquated and his aims mechanical—guided rather by the whims of the passing tourist than by the wants of the true lover of art.

A. J. W.
British Journal.

SUCCESS IN BUSINESS.

BY PROF. VOGEL.*

WHEN MM. Loescher and Petsch, the well-known Berlin photographers, left their old studio some four years ago—where they had carried on a prosperous business for some time, and secured a goodly share of honor and money—and proceeded to move into more commodious quarters, built upon improved principles, a worthy old glazier was heard to remark: "What a fool I have been to be sure! I might have had that old studio if I liked. It was offered to me before ever Loescher and Petsch were thought of. If I had only taken it I should be a made man now." Are you a photographer, then? I asked him. "Oh dear no," he replied: "but you can easily learn to be one in six weeks, you know, and the money required to buy such good machines as those of Loescher and Petsch I could easily have borrowed from my brother-in-law."

The worthy old glazier compared the success of Loescher and Petsch to that of an organ grinder who discoursed music by turning a handle. The refreshing greenness of this man may, perhaps be pardoned; but it is pitiable to see similar ideas participated in by those in higher stations of life. "I see that both your machine and yourself work well," wrote once a well-known authoress to a photographer in Berlin. It would be pretty much the same as if a musical critic were to say, in discussing a concert by the renowned Liszt: "That piano of Broadwood's and Liszt played most exquisitely the other night."

**Photographisches Notizen.*

This disparaging estimate of photographic success has very naturally an injurious influence upon the social position of a photographer, and that alone is bad enough, in all conscience; but worse still is it when this false view of photographic success or failure is entertained by assistants in the studio. It very often happens that a well-known artistic photographer engages for his work a draughtsman of moderate intelligence, whom he instructs in the matter of negative retouching. The assistant, after some weeks' practice, actually succeeds so well that he can work quite passably, provided that his principal looks after him pretty frequently, and points out his errors continually. In this way matters go on for a year quite smoothly. Suddenly, however, an idea occurs to the retoucher while pursuing his lonely task, with his mind left free for thinking. He flatters himself he is the principal man in the business, and tells himself, with pride, that without his work the renowned and well-paid-for pictures which his chief sells would be of no value at all. The deduction which follows is but natural, viz., that the fine sums of money which his principal earns through his aid, secured by a paltry weekly stipend, could with but little trouble be transferred to himself. A relation supports him in the idea, money is obtained from somewhere, savings are added to the sum, and an atelier is rented. The furnishing of this swallows up all the funds at disposal, for, in full reliance upon his skill, he takes a studio in one of the finest quarters of the town. A *clientelle* is actually established through the recommendations of friends.

Then the young man begins to feel that he is scarcely so experienced as his principal as regards his relations with the public and the posing of sitters. He does not possess a knowledge of the right way of going to work, nor how to bring out strong points, and hide the weak ones, of his models. He hopes, however, to compensate for all this in his retouching of the negative. The negatives are worked upon until the features are as smooth as those of wax dolls. With all these efforts,

however, the result is far behind that obtained by his late principal; the reason being, that not only has the new photographer no taste, but he lacks, moreover, technical knowledge and experience. He was doubtless in a position, when supervised by others, to undertake a duty, and carry it out successfully; but he is not competent to conduct a business by himself. His enterprise does not succeed, the invested capital is lost, and at the end of six months the speculator has become a wiser man, and is once more retoucher to his former chief. I have here sketched a picture from life, and have only omitted the name of the narrator of the story. It is by no means a solitary instance which I know of.

Very apt indeed are assistants in large studios to over-estimate the service they render, and the things of which they are capable; they imagine they can do by themselves that which their principal carries out with their aid, frequently only discovering their error when it is too late. I do not mean to warn them once for all that they must not presume to become independent. Those who do not feel competent to serve the upper ten thousand may be able to give more humble citizens what they require, and those who hesitate to undertake the direction of a magnificent studio in the metropolis may be content with the modest proportions of an *atelier* in the provinces. I have myself had pupils who were deficient in the matter of taste, and yet they make a very fair income, derived from a public which had less, and estimated highly the pictures supplied them. I also remember the circumstance of a photographer in a little provincial town doing a good business, whose comb and feather suddenly began to swell and puff out. He was the first photographer in the town of Mudborough, and, as a matter of course, the Mudburgers went mad over his pictures. So at last he became vain, and believing himself to be born for a higher state of things resolved to extend his sphere by removing to the metropolis. He was blind enough not to see that his pictures were far behind those produced in the capital; he spent an enormous

sum in the construction of a magnificent studio, and then came to a brilliant and speedy end.

Those who desire to be independent should first of all test their powers very accurately, and choose their sphere of action accordingly; and, above all, they must not put their expectations too high. In order to attain to genuine success in photographic portraiture a multitude of various qualities combined are necessary, such as artistic knowledge, natural aptitude, technical skill, presence of mind, energy, business knowledge, and unflagging industry.

NO LEARNING NEEDED.

He has been around again—the man who could make the finest work in the United States “if he only had the chance;” he didn’t take “no jurniles;” he didn’t “need no buk larnin;” but he could make just as good work as “enny of them fellers” if he but had their secret recipes. And he looked as if he could. In that dirty shirt, guileless of starch or collar, and his fuzzled beard and unkempt hair, you could see the artist “sticking out.” He would like a situation he said “in a fust class gall’ry,” and as he said this he spat tobacco juice just eleven feet; and he knew how to deal with customers, he did; all that was necessary was to take their money first, they had to be pleased then. Still, with all the accomplishments added to his charming person, he had not succeeded. The people of Pumpkintown, after three months trial, did not come as they should have done, to have their “mugs taken,” and the follower of art was sometimes obliged to hold the tavern horses to get his stray drinks; but he thought if he got a good place in the city, where the pay was large and the work light, “he could worry through a spell.” Does anybody want him? Don’t all speak at once.

Many books require no thought from those who read them, for the reason that they made no demands upon those who made them.

Against Weak Printing Baths.

BY JOS. UNGAR.*

DISSOLVE one part of nitrate of silver in six parts of distilled water, and recruit it, according to daily use, by a solution of one part of silver in four parts of water, and you will have an excellent, trustworthy, and enduring sensitizing bath for paper. This formula, it will be said, is a very old one, and has been repeated times without number. True enough; but if the stone is continually rolling down hill, it must be pushed up again and again. One would scarcely believe it, but it is a fact that there are numbers of theoretical economists who, notwithstanding repeated failures, still keep to a weak silver bath, only giving it up to try one weaker still, with admixture often of foreign compounds, whose influence upon photography not a soul of us has an inkling of. That the results are not of the best; that the beautiful shining albumenized prints are flat; that defects arise upon the slightest inattention; that the bath rapidly becomes unserviceable by the deposit of organic matter, and requires elaborate measures to restore it; that the liquid in a short time goes the way of all chloride; and finally, that a great deal of time is lost over the business, which to the photographer, more than another, signifies money—all these are matters of which theorists of this kind take no account. And these gentlemen never see that it is they themselves who suffer, because, instead of producing from the finest negatives brilliant and deep toned photographs, they give the public matt pictures of poor appearance. That they gain nothing in the end by their parsimonious behavior they can rest assured.

Those who allow their paper to float upon such a bath as here referred to, for the space of two minutes, and then remove the sheet gently, and hang it upon clips to dry spontaneously, will be sure to secure a vigorously printing and sensitive paper, provided the raw material itself and the albumenizing are faultless. Contrarily, if with such a sensi-

* Photographisches Notizen.

tizing bath no good prints can be obtained. then one may be quite convinced that the paper itself is of inferior quality.

Slow and careful withdrawal of the paper from the bath is to be recommended, because in this way very little of the superfluous liquid is taken away, and the volume of the bath, therefore, but very slightly lessened. It will be found that only a drop or two of moisture passes to the bit of blotting-paper attached to the corner of the hanging sheet, while otherwise an appreciable amount of liquid will be lost.

To prevent any tendency to break, the paper is folded as soon as no more moisture is observed upon the surface of the sheet, and before it has had time to become dry and hard, and has rolled up stiffly, the material being put away flat in such sizes as may be desirable. Strong baths require that the albumenized paper should not be perfectly dry before being sensitized; for this reason, it is well to let the paper remain at least twenty-four hours previously in a damp locality, taking care, however, that it does not come into actual contact with water. Should there be no opportunity for doing this, and should the paper, after being floated on the bath, show signs of repelling the nitrate solution in parts, and drops be formed on the albumenized surface, the best plan is to place the sheets face upwards, after sensitizing, upon paper; to put over each a piece of clean filter paper, which absorbs the moisture very readily, the sheet being hung in this way upon clips, and dried. This plan of proceeding does not hinder work in the least, because it can always be done while the next sheet is floating upon the silver bath. The first method is the preferable one, although the latter is one often pursued in large studios.

Another plan I adopt of working a paper which has become too dry is one that I can warmly recommend; it is simply breathing upon every sheet before it is sensitized. The plan of proceeding is the following: The dry, rolled-up sheets of paper are taken up like a pea-shooter, and, first from one side

and then from the other, breathed into, the warm air being prevented from escaping by the operator placing his hand on the other extremity. The paper is then rolled up a second time, differently from the first, and again moistened with the breath, so that all portions of the surface are acted upon by the moisture, and then it may safely be sensitized. The action is marvellous. A sheet of paper not so treated will allow the solution to dry in drops upon its surface, while simply breathing upon will remedy the defect. The plan is as simple as it is effective, and will be prized by all who do not possess a cellar for keeping their paper in, nor a moist or cool locality for sensitizing. It should be borne in mind that the bath must be always brought up to its normal strength every day by the addition to it of a proportional quantity of the stronger stock solution.

One main advantage of a short sojourn upon a strong bath lies in the circumstance that upon such papers the print remains on the surface, and thereby the deep toned shadows and delicate gradations of the negative are enhanced, whilst the shadows upon paper prepared with a weaker bath possess neither vigor nor fine details, and have a flat, washed-out look. If it is sought to obviate this defect by a longer floating upon the bath, more vigor is secured thereby, it is true, but then a portion of the albumen film is dissolved away, and the surface loses much of its glossy character. The silver sinks deeper into the paper mass, and the picture, therefore, appears more sunken, and loses its delicacy.

The operation of sensitizing upon strong baths is, moreover, comparatively easy. Failures in preparation are more rarely met with. Any bungling when placing the paper on the liquid does not leave a mark, and if air-bubbles are formed by letting it fall upon the solution too rapidly, these are rapidly dissipated by lifting the opposite end from the bath and allowing it sink again. With weaker solutions the matter is different, the sensitizing operation being somewhat risky. A pause in laying down the paper inevitably produces a matt insensitive line, and if bubbles are

formed, no matter how soon they are chased away, small circles are apparent on printing. The explanation of these disagreeable defects is easy to discover. The sensitizing process is of a very energetic nature. A strong bath coagulates the surface of the albumen in a moment. The large quantity of silver at hand eagerly combines with the salts. In a weak bath the action is slower, but still quick enough to rob the surface of the bath, instantly, of the greater portion of its silver. If that portion of the liquid containing little silver comes into contact with a not coagulated part of the paper which has been covered by an air-bubble, the albumen must be in a great measure dissolved by the bath, leaving that part of the surface with very little silver upon it. The necessary consequence of this is, not only the destruction of the paper on such spots, but also a certain deterioration of the bath.

It may be advanced by some that they are careful, and take the greatest pains in the sensitizing of the paper. This will not, however, advance matters much, for even in this case a certain quantity of the albumen is dissolved in the bath, because the coagulation takes place so slowly and imperfectly, as may be proved by the flat prints which result. If greater vigour is sought to be secured by increasing the period of sensitizing, it would either be necessary to lengthen the time progressively until a space of ten or fifteen minutes is reached, or to add as much silver solution from time to time to the bath as is required in the case of a stronger liquid.

Dilute baths usually deceive a tyro, because a first experiment is no criterion of their value, the sheets sensitized at the commencement giving very good impressions. But it is not long before one is beset with difficulties. Manufacturers of paper who give their customers a formula for the preparation of a weak bath have presumably made an experiment with it, and been contented with the first results furnished by the bath, and they are, therefore, considerably astonished when their good paper is subsequently thrown back upon their hands as altogether unserviceable. It is only a practical man of experience that

can form an opinion on matters of this kind.

Economists may still put forward their belief in a weak bath and subsequent ammonia fuming, and in adopting this method there is we must admit, a saving to be experienced. But this plan has also its drawbacks: loss of time during sensitizing and fuming is involved, and much caution is necessary, in the latter operation, not to allow the ammonia to act too long or too briefly upon the paper, as otherwise the tone and vigour of the prints will be very uneven. To the unhealthy character of the ammonia fumes attention should also be called, only photographers are so used to noxious vapours of all kinds that one more or less is of little moment.

To summarise, when we know that a concentrated silver solution never can get out of order, and is a guarantee always for good work; when we know that paper sensitized with it tones beautifully and uniformly in every neutral gold bath; when all operations are thus amplified, and material saved; in short, when in every respect better results are obtained, ought we to continue to bother ourselves with weak baths? Assuredly we think not, and it is to be hoped that the reader is of the same opinion, and will not carry economy so far as to become a vice rather than a virtue, leading in the end to an excess of expenditure rather than anything else.

The Usefulness of Blotting-Paper in Photography.

BY ALFRED HUGHES.

BLOTTING-PAPER is rather a humble theme; but, as I derive much benefit from its use, I wish to point out its advantages to others. It is useful in every stage and at every turn, from the beginning of making a negative to the completion of the positive print. Unfortunately, it is not indispensable, and, therefore, is not used as much as it might be—I was almost saying as much as it ought to be; but that is a matter of opinion.

Some persons do not seem alive to the fact that blotting-paper is a better material for absorbing nitrate of silver than finger-ends, wristbands, or shirt-fronts. I can assure them that it is; and it is certainly more convenient to send your blotting-paper saturated with silver solution to the silver-reducer than to send him your shirt—to say nothing of the economy.

Many people look on blotting-paper only as a scavenger, stopping and mopping the drops and slops about the place. It should be regarded as the "save-all" of the establishment. When looked at from this point of view it will be used more freely, because it will then be seen to be a means of economy, instead of an expense.

Whenever there is nitrate of silver blotting-paper should be handy—as drops *will* fall, and spillings *will* take place in the best-regulated studios. If possible, the paper should be placed where the solution will be likely to fall on it; if not, the paper should be at hand to soak it up directly.

The table or bench on which the nitrate bath stands in the dark room should be covered with one or two thicknesses of blotting-paper, to absorb the drops and splashes that cannot be avoided.

A small bit of blotting-paper may be used to lift the plate off the dipper and put it in the slide. My plan is to take the plate, after a slight draining, and to rest one end on the blotting-paper to further drain, and, at the same time, to wipe the back of the plate with a pad of blotting-paper.

In placing the plate in the holder I allow it to rest at the bottom, not on silver corners, but on a well-varnished wooden ledge, a slip of blotting-paper being between, and preventing contact. This slip of paper is thus about an eighth of an inch on the face of the plate, and is turned over half-an-inch at the back. By this means the plate is kept clear from accumulated silver solution; the corners of the plate-holder do not become rotten, nor injure the camera by carrying the solution to it; and the carpets and furniture, the clothes of the operator, and the focussing-cloth are

all protected from the stains produced by droppings of the silver solution.

I could write a chapter expressive of my annoyance at that disgrace to professional photography—a dirty operator. In no respect does he more exhibit his obnoxious character than in the way he misuses the nitrate of silver solution. He splashes the walls with it, stains the floor, corrodes the metal-work, rots the dark slide and camera, spoils curtains, chairs, and carpets, and saturates his clothes, dyes his hair, blackens his hands, and defaces his countenance. The idea never seems to occur to him that the solution was not intended for any one of these purposes, and that it is not only wasted, but doubly so, by doing nothing but injury by its misuse.

The remedy for all this is the liberal use of blotting paper in every stage where silver solution is about, to absorb all the droppings and drainings. The safest and the cleanest place for the silver solution is in the blotting paper, and, once there, all fear of its spoiling other things ends.

When mixing bath solutions, or strengthening or filtering, always have blotting paper ready for the inevitable drops. It is no use waiting till they come; they always will come, especially if the blotting paper be not already there.

If the mouths and necks of bottles are wiped with this useful material they can always be used without the staining that otherwise accompanies the handling of bottles holding silver solutions.

In printing I make considerable use of blotting paper, employing it to absorb the free silver solution on the surface of the paper, when sensitising. Besides being more cleanly and economical, the printing is more uniform.

Blotting paper is spread over the bench supporting the sensitising dishes, and wherever a drop of the silver solution is likely to fall; pieces are always ready to take the scum from the surface of the silver solution when it forms, as well as to remove air bubbles and to wipe out the dishes.

The pads in the printing frames absorb a

good deal of silver from the backs of the silvered paper. This may not be suspected when dark woollen pads are used; but, if white blotting paper be placed behind the print, it will soon show the silver it has acquired by becoming darkened. It should then be changed for a fresh piece, and be transferred to another scene of further usefulness as a "picker up of unconsidered trifles."

The usefulness of this paper in absorbing moisture from the washed prints, and, under a slight pressure, allowing them to dry moderately flat, instead of curling, which they would otherwise do, permits the final trimming and mounting to be more easily done.

The blotting paper I recommend is not the common, thin sort, which breaks with its own weight when wet, but the thick description, sometimes called "club" paper. It is dearer in the first instance, but, owing to its superior absorbent powers, it is much cheaper in the end, and may be used again and again, till as "black as your hat."

The solution of nitrate of silver is invaluable for photographic uses on the surface of sensitised paper, in the collodion film, and in the intensifying solution; but everywhere else it spoils all it comes in contact with. If blotting paper, by absorbing it, did no more good, it would be a great means of economy, to say nothing of cleanliness, by preventing this destruction. But, as every morsel of it can be turned into money by burning, it becomes doubly economical.

Some people attempt to mop up their photographic messes by their old photographic literature instead of blotting paper. It is gratifying to know that they very imperfectly achieve their ends; for they soil their hands, and do not absorb the silver. Real economy consists in binding the journals, and buying blotting paper.—*Brit. Jour. Almanac.*

A new process for heliographic engraving is given by a cotemporary: A photographic roof is applied to a sheet of zinc, when the silver, transferred from the paper to the plate, produces a metallic layer which enables the zinc to be attacked by very dilute acids.

What Color is best for Photographs?

HAVE photographers in general anything like a clear idea of the immense importance of the profession in which they are engaged as one of the industries of the country? We hardly think so, and commend to their attention some observations made by Mr. W. Neilson, in a paper read at the last meeting of the Edinburgh Photographic Society and given in another page, which are at least suggestive.

Amongst the numerous materials required in the varied process and Manipulations for the production of a finished print albumen can only be considered as a small item. We are satisfied, however, that Mr. Neilson has much understated the number of eggs actually consumed; but yet a million eggs, at the modest estimate of nine pence per dozen, amounts to no less a sum than three thousand and one hundred and twenty-five pounds sterling. If such an amount be annually spent on one small item, what shall we say of the necessary pecuniary outlay on silver, gold, glass, ether, alcohol, gums, paper, and all the thousand-and-one articles either directly or indirectly in daily use by the professors of our art? On this matter we must for the present leave each reader to speculate for himself, although we intend to look somewhat into the subject, and shall probably, by-and-by, publish a column of statistics which will be startling to those who have hitherto entertained a superficial idea of photography as a commercial interest.

Meanwhile, taking the immense importance of photography as an industrial institution for granted, we would ask—Are photographers doing their best, and doing it in the right direction, to maintain and increase or develope that industry? The general reply will no doubt be—"Of course, photographers know their own interests and their own business best, and are likely to do that which will most rapidly increase on the right side the balance in their bank account." This no doubt, sounds well, and in ordinary business or trade transactions the reasoning would be

faultless; but in connection with professions depending for support on taste and the appreciation of the beautiful, matters of culture, training and education, we think it is somewhat different. In ordinary trade the supply is mainly regulated by the demand, while, in the other case, the demand is mainly created by the supply. We know that there are many professional photographers who have made the "pot boil," and boil well, with no higher aim than to produce that which their *clientèle* require; but we hold that with such a limited goal in view no real advancement can be made, and retrogression is inevitable. We believe that he who would not only maintain his present position, and advance not only himself but his interests and the art generally, can only do so by gradual but constant progress upwards and onwards, always rising his *clientèle* up to his own level, and teaching them how to appreciate in a higher degree that which is nobler and more beautiful in art.

If photographers generally followed this course real progress would be rapid. There might, at first, be some little hitches. A touchy or self-opinionated visitor might decline to be tutored into the knowledge of better things; but for one so lost we have no doubt ten would be gained. Expansive as photographic industry now is it would become largely extended, and the photographer would reap a double reward—an increase in his emoluments and a larger feeling of that conscious self-respect which ever follows the true discharge of duty.

The old masters whose names are yet household words did not make reputation and fortune by painting according to the then prevailing taste, but strove to reach to their highest possible conception of art, thereby elevating their contemporaries. The great manufacturers of ceramic ware were not content with the rude form and coarse ornamentation of the articles which pleased their publishers sufficiently well, but called in the aid of the designer both for form or ornament, and by the improvements so made increased the demand a thousandfold. So should it be with

the photographer. Let his aim be high, his determination to reach it irresistible, and he may depend on a public ready to appreciate and reward his efforts

As an illustration, let us consider a case in which the photographer very frequently gives way to popular taste rather than to be guided by his own judgment. It is as to the colour of his prints. In passing along any of the fashionable thoroughfares of the metropolis we now and then encounter a specimen case of prints of the cold blue-black shade, frequently praised as being "so like an engraving," but which to most people is disagreeable. We have frequently questioned such photographers as to their preference for this color, and always got the same answer. They did not themselves like it—in fact considered it a mistake—but it pleased their customers, and that was the grand thing to be considered. Mr. Bruce, of Dunse, in his otherwise excellent paper, published at page 196 of our number for April 24, boldly expresses his preference for this colour, and labours to justify his choice, but, we think, without success.

Photography and engraving seek to render depth and transparency by very different means; and what may be very suitable in the one case is, we think, unsuitable in the other. Whatever the black ink may do in the engraving, it certainly does not give the desired depth and transparency in the photograph; and this, we believe, will be the opinion of every unbiassed artist or man of taste who has suitable specimens submitted to his judgment.

It is, perhaps, easier to say what is unsuitable than to point out what is suitable. We feel persuaded, however, that a large majority of those whose opinions are entitled to most weight would decide in favor of a warm purple-brown, but with the purple in very minute quantity. At present we do not care so much to decide on what the color should be—although we certainly prefer the warm tones—as to impress upon photographers the necessity of first thoroughly satisfying themselves as to what is best, and then

teaching the public to think so too. If that were generally done we have no doubt that black, or attempts at black, tones would soon disappear. The less artistically educated of the public who demand black tones do so, we believe, from a feeling that because engravings are generally in black the photograph should be so also; but they ought to be aware that some of the most valuable of the old masters works were printed in warm colors. The *Libri Veritatis* of Claude Lorraine were all in a warm brown; the splendid engravings of Bartolozzi were printed in red chalk; while the works of many others not so well known, but still excellent, were colors.

We would advise those who have any doubt of the greater transparency, depth, and brilliancy of warm colors to examine carefully some of the work of the Autotype Company or other carbon printers, and it will be found that where black has been used there is dullness and flatness; but where the purple-brown—such as is found in the print in our ALMANAC of this year—has been introduced the result is simply admirable. Photographers should imitate that, and teach their patrons to like it, and if photographic artists do not succeed, the result will not be due to the color of their prints.

Photographic Illustrations.

It is encouraging to see how surely, if a little tardily, photography is making its way as a means of illustrating contemporary literature. It is no novelty, of course, to see a book illustrated by photography, but those hitherto produced, for the most part, enjoyed but limited circulation, being put forward by their publishers more as tentative essays and experiments, rather than as commercial speculations to realize a profit. It is only during the last year or two that booksellers have seen their way to employing photography in competition with engraving, and an excellent example of what the art can do is afforded by the Princess Lichtenstein's work on Holland House, which is profusely illus-

trated by Woodburytypes. Another step is now being made, and we are right glad to find that a journal with so large a circulation as the *London Figaro* is giving its readers a photographic illustration every week, the price of the journal, together with the frontispiece, being but twopence. The first picture issued is a carte portrait of Madame Nillson, by Pierre Petit, of Paris, which has been printed, we should think, by Messrs. Goupel, of Asnières, by the Woodbury, or as they term it, photographique method. The carte is a charming production, and as well printed as a first-class silver picture, to which, on the score of permanence, it is of course vastly superior. Mounted on a card, its ordinary price would be a shilling, and yet the purchaser is asked but a fraction of twopence for it. The cost of production of these pictures, when an edition of forty or fifty thousand is required is no doubt comparatively small, for in this case we must suppose that a margin for profit remains to the publisher. The appearance of a newspaper with a photographic illustration must be regarded, therefore, as a grand stride in commercial photography, proving as it does, the possibility of producing pictures of such excellence at so low a figure. By Lichtdruck, or Heliotype, photographs could doubtless also be obtained quite as economically; but even if possessed of the same delicacy and detail, they would scarcely be so brilliant, or approach so nearly a vigorous silver print, such as Madame Nillson's portrait appears to be. In Paris an attempt was made a year ago to illustrate a theatrical journal in the same way as is now being carried here; but although the enterprise continued for some time, and is, for aught we know, still being carried out, the circulation of the journal was not such as to command a great success. One grave drawback was the unsuitable mount presented by the thin, flimsy newspaper, which detracted very much from the finish of the photograph; and we are glad to see a solution to this difficulty is pointed out by the editor of the *Figaro*, who recommends those desirous of preserving the picture to remove it from the paper by moisten-

ing the back with a wet sponge, and to transfer the image to a suitable album. Hot water should never be employed for unmounting a Woodbury print, as there is always a risk of disintegrating the pigmented surface.

Photo. News.

Recovering the Silver from Photographic Wastes.

Mixture of Iodides, Chloride, Cyanide, Nitrate of Silver, Hyposulphite of Soda, Cyanide of Potassium, etc.

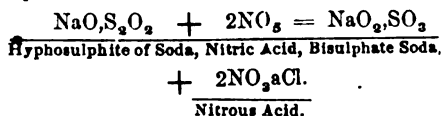
BY JAMES CHISHOLM.*

VARIOUS methods have been proposed to accomplish this object, but every one of them suffers from disadvantage; one of them yields the sulphide of silver, which takes an enormous quantity of carbonate of soda to reduce, and repeated fusing; another method yields chloride of silver mixed with sulphur, where the difficulty is again the removal of the sulphur; another method, the reduction with metallic copper, is too slow and tedious. It was a particular study of mine to find a quick, accurate, and easy way to regain the silver from a mixture of all kinds of combinations, and at last I succeeded. As you are all well aware, the solution of chloride or iodide of silver in hypo-sulphite of soda deposits the silver combination on addition of acids, but, at the same time, a great deal of sulphur, which mingles with the chloride of silver, and thus the regaining of the silver is rendered more complicated, a very large amount of carbonate of soda or potash being required to remove the sulphur, or a prolonged boiling with strong nitric acid. I was convinced that in order to avoid the depositing of the sulphur, I had to destroy the hyphosulphite in such a manner as to make the separation of sulphur impossible.

This I found may be accomplished by adding the silver refuse to warm strong nitric acid. No separation of sulphur thus takes place, because the hyphosulphurous acid in a nascent state is at once oxidised into sul-

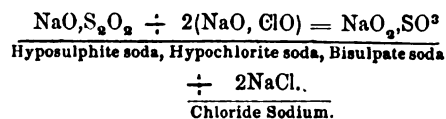
* Read before the Photographic Section of the American Institute.

pheric acid, as is explained by the following equation:—



But here we have the development of very disagreeable fumes of nitrous acid and hydrocyanic acid from cyanide of potassium. This method seemed to me impractical. I found I could replace the nitric acid by a mixture of chlorate of potash with an acid, but even in this case we cannot avoid the evolution of offensive gases.

I saw I had to bring about the oxidation in an alkaline or neutral solution, and tried the effect of hypochlorite of lime and of soda, and succeeded. If hyposulphite of soda is added to hypochlorite of soda, an oxydation to sulphate of soda will take place. This may be represented by the following equation:—

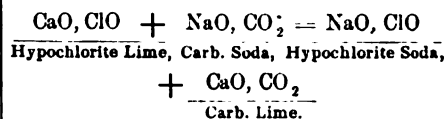


No separation of sulphur takes place, and no development of any disagreeable fumes; and thus this method may well be recommended, and I am confident it will replace and supplant all others. The common bleaching powder (hypochlorite of lime) may do also, but for obvious reasons the hypochlorite of soda (freshly prepared,) a clear liquid, is far preferable. I simply proceed as follows: I add to the silver refuse hypochlorite of soda, until the precipitate becomes permanent, and does not disappear by stirring the mass, and assumes a perfectly white color. At this time a strong evolution of gas will ensue, which is perfectly odourless, consisting mainly of carbonic acid derived from the carbonate of soda contained in the hypochlorite.

Now I heat the mass moderately, and take a little of the supernatant clear liquor out, adding to this a few more drops of hypochlorite. If no turbidity is thus produced, the process is finished, and the entire white

precipitate, after washing with water, fused with carbonate of soda and potash in a crucible, whereby the pure silver bullion is easily obtained. To prepare the hypochlorite of soda I found the following way the simplest and the best: Take of chlorinated lime twelve troy ounces; carbonate of soda, twenty-four troy ounces; water, twelve pints. Dissolve the carbonate of soda in three pints of water, with the aid of heat. Triturate the chlorinated lime a little at a time, with small portions of water, gradually added, until a smooth, uniform mixture is obtained. Mix this intimately with the remainder of the water, and set the mixture aside for twenty-four hours. Then decant the clear liquid, and, having transferred the residue to a muslin strainer, allow it to drain until sufficient liquid has passed to make, with the decanted liquid, eight pints.

Mix this thoroughly with the solution of carbonate of soda, transfer the mixture to a muslin strainer, and allow it to drain, adding water, if necessary, towards the close, until eleven and a-half pints of liquid have passed. Lastly, keep the liquid in well-stoppered bottles protected from the light. The liquid is the hypochlorite of soda, ready for use, which is explained by the following equation:—



A transparent liquid of a greenish-yellow color, having a slight color of chlorine, and a sharp saline taste. Its specific gravity is 1.045. It rapidly discolorizes a solution of indigo, and produces a copious light brown precipitate with a solution of sulphate of iron.

When any silver solution is boiled down to dryness, if not properly attended to, it sometimes forms a solid mass in cooling. Instead of cutting the silver out by hard knocks, add a suitable quantity of water and set in the stove again, and it will dissolve readily.

Photography at the Bottom of the Sea.

DR. NEUMAYER has recently exhibited before the Berlin Geographical Society a photographic apparatus designed for the determination of the temperature and of the currents at great depths in the ocean.

The invention is composed of a copper box, hermetically sealed and furnished with an exterior appendix made like a rudder. In the interior is a mercury thermometer and a compass, each enclosed in a glass receptacle in which are admitted traces of nitrogen gas. A small electric battery completes the apparatus. When the latter is allowed to descend attached to a sounding line, the action of the current on its rudder causes it to assume a parallel direction, thus indicating the set of the flow by the relative position of the compass, needle and rudder. The thermometer of course shows the surrounding temperature. In order to fix these indications, a piece of photographic paper is suitably disposed near the glass cases containing the instruments. Then at the proper time a current of electricity is established through the gas in the receptacles causing an intense violent light, capable of acting chemically upon the paper for a sufficient length of time to allow of the photography thereon as the shadows of the compass needle and of the mercury column. Within three minutes, it is said, the operation is complete, when the apparatus is hoisted and the paper removed.—*Scientific American*.

EMBRACING A PHOTOGRAPHER.—A FUNNY STORY.—Salvini, the actor (says a Toronto paper), when having a photograph taken, was so delighted with the proof that he flung his arms about the operator and embraced him. This was gratifying to the operator, and did not cost Salvini anything. A gentleman in this place, whose name we will not mention, was very much pleased with the great actor's artifice—as he persisted in terming it—and, believing the appreciation is dearer to a true artist than money, he concluded to have some photographs of himself. When the proof was shown him he knew that was the time to fling his arms around the

operator, but he could not pluck up sufficient courage. He thought he would wait a more favorable opportunity, and became very nervous in consequence. Pretty soon the operator had occasion to reach under a case of specimens for a cloth, and, full of desperation, shut his eyes and swooped down upon him. The frightened artist, believing that this was a new process for garroting, straightway screamed murder, and sought to defend himself until the arrival of aid by beating the assassin over the face and head with a brush full of varnish. Every lick of the brush developed additional ferocity in the face of the customer, and subsequently increased the terror of the operator, whose shouts aroused the inmates of the building, and brought to his help in quick succession a tailor, two dress-makers, four clerks, and a one-legged basket-maker. The benumbed and varnished victim was quickly overpowered, and, being sat upon by as many of the masculines as could be accommodated, was firmly held until the arrival of an officer. Fortunately, he was known by the officer, who recognized him from his apparel—not being able to see his features for the varnish—and, upon explaining that the cause of his coming down upon the operator was a sudden dizziness he experienced, he was released. A hack was obtained, and he was taken home, and his head put to soak in lime-water, for the removal of the varnish from his face. But it was found necessary to shave his scalp, as it was impossible to save his hair. He is glad he got the pictures when he did.

THE OLD MASTERS.—The wife of an eccentric citizen, who has grown wealthy during the past few years by the advance of real estate, went abroad a few days ago. One of her acquaintances asked her what particular purpose she had in going, and what she expected to enjoy most. "Oh, I don't care much about Europe," she replied, "on my own account. The main object I have in making this trip is to have the portraits of these children," pointing to three homely girls of nine, eleven and thirteen, painted by the old masters."

FOREIGN NOTES.



MUCH attention is being given in England to collodion-chloride prints upon paper, which are supposed to be more permanent than the ordinary solar print upon albumen paper.

THE British government in view of the frequency of gunpowder, steam and other explosions, now employ a corps of photographers to visit the scene of disaster immediately, and by taking correct views, show the effect and perhaps cause of the explosion.

THE rendering of prints transparent, and coloring them from the back, seems to be considered something new across the water, but most of us remember the old Ivorytype or Hollotype.

THE new process man has turned up in Japan, the process is said to be wonderful, and all that is necessary to learn it is *to go to Japan*. The man who will go will be more of a *wonder* than the new negative process.

OWING to cessation in the manufacture, Swedish filtering paper is expected to become very scarce and high.

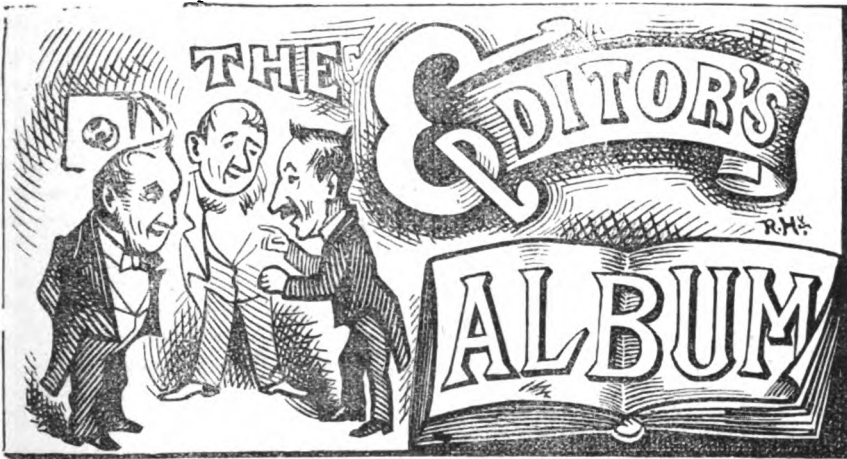
THE addition of a very considerable amount of alcohol to the silver bath for paper, is being tried in France, with what is said to be superior results and economy.

A SOLUTION of sulphate of zinc is a capital emetic in the case of accidental poisoning. It would be well to keep this within reach. We handle our chemicals so often that we are apt to become reckless.

EXPERIMENTS looking toward permanency in prints, are now being carried on with vigor everywhere. This is so necessary and so much to be desired that any means which can be devised will be received gratefully by all, for when our productions are absolutely permanent, that is as much so as the material upon which they are made, one of the principal flaws in our noble art will be removed.

IN Europe they seem to have a proper way of dealing with process mongers, and cause them to be arrested as swindlers where they attempt to palm off spurious receipts upon photographers, and members in high standing who resort to these underhand means are covered with the obliquy they deserve.

GURNEY'S FORMULA.—*Negative Bath*—(same as Frederick's) Collodion—Ether and alcohol, equal parts, iodide of ammonia 5 grains to the oz., bromide of cadmium 1½ grains; bromide of ammonia 1½ grains; cotton 5 to 7 grains. Collodion works best from ten to thirty days old.



THROUGH the kindness of our friend, Mr. Elbert Anderson, Mr. Kurtz's able coadjutor, we were presented with a copy of the book Mr. Kurtz offers to his patrons, which gives a slight description of the magnificent gallery he has recently erected in New York city, which outvies all attempts, either here or in Europe. It speaks well for the capacity of this much divided business, when a man will invest \$130,000 in one establishment, and shows Mr. Kurtz has faith in it as well as in himself.

MR. EDMONDSON, of Plymouth, Ohio, sends us a set of his "Drunkard's Progress" Stereo, which are quite Hogarthian in conception, and which are unexcelled in the make up, and good as photographs. Composition pictures of this high order, will make a new era in stereoscopic slides.

THE St. Louis Bridge, that stupendous monument of railroad enterprise has been photographed in various stages, and in its completed state by Mr. Robt. Benecke, St. Louis, who kindly forwards us some copies, which are excellent specimens of stereography. Mr. Benecke's work is well known to all the N. P. A.

MR. O. MCINTIRE, of Canton, O., forwards us, beside a friendly greeting, three really good cartes, which are very well lighted, and very soft in the chemical treatment, altogether praiseworthy productions.

FROM Messrs. Wager & Churchill, of Erie, Pa., we have received some fine cartes in the Rembrandt style of lighting, which are excellently finished, besides, being from good negatives. How much does careful finishing add to photographs.

MR. D. BURNETT favors us with a print of a fine negative of Tower Rock, which stands in the Miss. River, about 100 miles below St. Louis. We would be glad to illustrate the FRIEND with these really fine views were it not that we have engaged already ahead all the views variety will allow us to publish.

FROM Atkinson's art gallery, Palmyra, N. Y., we have a fine cabinet of a child taken in a Rembrandt light; the picture has but one fault, and that is the vignetting has made the face almost the darkest part of the picture. It is a well known rule in portraiture that the background must be dark enough to show to

advantage the very darkest parts of the face. This gentlemen's work though is very fine, and we hope soon to present some specimens as illustrations of this book, which will show to good advantage the peculiar and interesting lighting and positions which are making a name in New York State.

CHICAGO, ILL.—To display to an admiring public this new large picture, we received an invitation gotten up in the true Mosher style, and if we could have gone by telegraph we would have been there. Our worthy President, Mr. Borgardus, has been taken by him "on the wing," as it were when he was in Chicago recently, and from the print he sent us his large camera is just splendid; we annex a notice from the *Times* of that city:

GRAND ART RECEPTION.—On Tuesday and Thursday evenings, and Saturday afternoon and evening, of this week, Mr. Mosher, Chicago's favorite photographer, will give grand receptions at his emporium, No. 951 Wabash avenue. He has on exhibition the set of 12 of the finest premium photos., made by Loesch & Petsch, of Berlin, which took the highest awards at the Vienna exposition. The praise awarded them induced Mr. Mosher to purchase them as models of pose and lighting. Mr. Lewitzkey, of the committee, said of them:—"They are perfectly beautiful and have charmed me; and, in my opinion, they are the finest photographs in the world." Mr. Mosher has also a large collection of life-size portraits of our distinguished citizens, finished in oil, crayon, and water colors. He has just purchased one of the largest cameras in America, made and imported expressly for him. It will make a larger photo than has ever been attempted in Chicago. Besides these enumerated, the visitors will be charmed by many noteworthy features in the art photography.

OUR friends, Messrs. Hill & Bowers, of Burlington, Vt., are producing some excellent work, and they are being appreciated in their section, as the following extract will show:

PICTURES.—Pictures may justly be called sentential language. They contain thought

and expression in the most concentrated form and, if well executed in the most natural and graceful proportions. What poet's pen could so beautifully, strikingly and affectingly portray the character and features of our friends, and bring them to our minds, as the artist's pencil, and the photographer's careful work. Such was our reflections, as we stopped a moment to inspect the fine display of photographic work now on exhibition Lyman & Allen's, from the rooms of Hills & Bowers, in this city. These enterprising and successful artists are turning out a style of work that does them great credit, and must insure them an immense patronage. None look at their pictures but to admire and pronounce superb. Among those now exhibited by them we see an excellent picture of Hon. E. B. Smith, of Milton; one of Judge Tyler of this city; one of Mr. Cornelius, also one of Mr. Walker, and numerous other well known faces, all looking naturally upon us, with striking likeness and speaking expression. But few gentlemen have striven so hard and so successfully to elevate the standard of their profession, and well do they deserve their unexcelled reputation.—*Burlington Sentinel*.

We have received to enrich our "Album," some half dozen cabinet cards, from Mr. E. T. Kelly, of Somerville, N. J., which are superior pictures. The majority of them were from unretouched negatives, and were finely lighted, and possessed exquisite detail and modelling. Mr. Kelly's own picture was gratefully received; no picture is placed among our collection with more pleasure than of an old friend and subscriber. We must especially commend the head of the old gentleman, which is a study, and one may well be proud of. Glad to hear from you, Mr. Kelly, and hope to soon again.

PRINTING should be done with taste and care, and not be merely mechanical. A strong negative may be printed quickly, but a thin one should have a strongly silvered paper, and be printed under one or two thicknesses of tissue paper.

THE PHOTOGRAPHER'S FRIEND



"LET THERE BE LIGHT."

AN ILLUSTRATED
BI-MONTHLY MAGAZINE,

Devoted to the Photographic Art,

PUBLISHED AT

No. 46 N. CHARLES ST.,
BALTIMORE.

Expose the Wrong! Maintain the Right!

September,

RICHARD WALZL, Publisher.

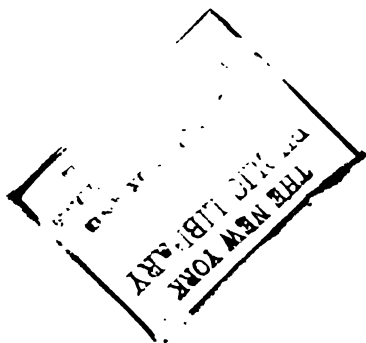
1874.

CONTENTS.

	PAGE		PAGE
The N. P. A. Convention	129	On the Comparison of Photographic Processes with reference to their Relative Rapidity—Dr. WINSTANLEY.....	148
Photography from a Sanitary Point of View—Dr. H. D. NAPIAS	130	Albumenized Paper Enlargements by development	149
"Our Boys"—P. WALLER.....	135	A Dry Atmosphere a Cause of Imperfect Prints.....	150
On Sensitiveness.....	137	Color of Negatives—WM. HEIGHWAY.....	151
On the Stability of Collodion Films—Dr. H. VOGEL.....	138	Dernier Effects—New Method of Improving Negatives.....	152
Iodide of Silver in the Dipping Bath—Dr. H. VOGEL.....	139	Washing Prints.....	153
On Lighting—F. WALLER.....	140	On Engine Photography.....	153
Some Causes for Hardness in Photographs—W. E. BATHO.....	142	Our Illustration.....	155
About the Developer—Dr. H. VOGEL.....	145	Miscellaneous.....	156
The Possibilities of Future Discovery.....	146	Foreign Notes.....	157
Curious Customers—No. 10—WM. HEIGHWAY.....	147	Editor's Album.....	159

THE MEN WHO ADVERTISE.

Anthony, E. & H. T. & Co. <i>Photographic Stock and Chromos.</i>	Hirshberg, Holland & Co. <i>Photograph and Picture Frames.</i>
Anthony, E. & H. T. & Co. <i>Adamantean Plates.</i>	Haworth, J. <i>Photo. Materials.</i>
Anderson, J. A. <i>Photo Apparatus.</i>	Knell, Geo. <i>Chairs, Lounges, &c.</i>
Bachrach & Co. <i>Printers and Copyists.</i>	Kelsey, C. C. <i>Banner Collodion.</i>
Baldwin, A. H. <i>Photo. Materials.</i>	Kellinger & Co. <i>Artists' Materials, Chromos, &c.</i>
Collins, A. M. Son & Co. <i>Cards, Mats, &c.</i>	Lewis, R. A. <i>Collodion.</i>
Cooper, Chas. & Co. <i>Albumen Papers, &c.</i>	Lœffler, J. <i>Stereoscopic Views.</i>
Clemons, J. R. <i>Paper and Varnish.</i>	Moulton, L. V. <i>Photographic Washer.</i>
Cox, John. <i>Printing.</i>	M'Collin, Thos. H. <i>Photo. Materials.</i>
Carbutt, John. <i>Photo-Relief Printing Co.</i>	Magee, Jas. F. & Co. <i>Photographic Chemicals.</i>
French & Co. <i>Voigtlander & Son and Darglot Lenses.</i>	Marcy, L. J. <i>Sciopicons and Magic Lanterns.</i>
French & Co. <i>Rice's Patent Sherman B. W. and White Hollywood Card Frames.</i>	McAllister, T. H. <i>Magic Lanterns, &c.</i>
Fairbank, Murphy & Co. <i>Mouldings, Frames, &c.</i>	Myers & Hedian. <i>Mirrors and Fine Arts.</i>
French & Co. <i>Lenses, Frames, &c.</i>	McCollin, Thos. H., <i>Photographer's Materials.</i>
Fitzgibbons, J. H. <i>Adhesive Picture Mounts.</i>	National Photographic Chemical Co. <i>Show's Patent Process.</i>
Fairbanks, Murphy & Co. <i>Passe-Partouts, &c.</i>	Pittman, S. E. <i>Mouldings, Frames, &c.</i>
Gatchell & Hyatt. <i>Stock House.</i>	Pattberg & Bro. <i>Frames, Mats, &c.</i>
Gennert, G. & Co. <i>Albumen Paper.</i>	Phenix Plate Co. <i>Ferrotypes Plates.</i>
Haworth, J. <i>Photographic Materials.</i>	Peasel, Carman. <i>Stereoscopes, &c.</i>
Hirshberg, Bros. & Hollander. <i>Glasses, Frames, &c.</i>	Phillips & Jacobs. <i>Chemicals, &c.</i>
Holmes, William B. & Co. <i>Photographic Stock, &c.</i>	Ryan, D. J. <i>Stock Depot.</i>
Hale, Kilburn & Co. <i>Picture Frames, Mouldings, &c.</i>	Stoddard, S. R. <i>Photographic Views.</i>
	Scovill Manufacturing Co. <i>Morrison Lenses.</i>
	Semmendinger, A. <i>Photo Plate Holders.</i>
	Trapp & Munch. <i>Albumen Paper.</i>
	Woodward, D. A. <i>Solar Cameras.</i>
	Walzl, Richard. <i>Photographic Stock, &c.</i>





R. E. ATKINSON,

PALMYRA, N. Y.

T H E

Photographer's Friend.

Vol. IV.]

SEPTEMBER, 1874.

[No. 5.]

Entered according to Act of Congress, in the year 1874, by
RICHARD WALZL,

In the Office of the Librarian of Congress, at Washington.

THE N. P. A. CONVENTION.

THE Chicago meeting has been held, and may be considered at least a partial success, in spite of the disastrous fire which hurried many back to their homes, and at one time threatened to destroy the Exhibition Building itself. The fraternity in Chicago acted in the most liberal and praiseworthy manner, in regard to the local management, and everything in and about the building betokened their skill and taste. After strenuous efforts the whole of the indebtedness was cancelled, and the Association is to-day free of debt, and that it intends to remain so, is evident from the resolution to publish their own proceedings.

It is not our purpose here to interfere in any way with the publication of the Association Pamphlet by forestalling any of the particulars, we will only mention a few items of general interest.

President Bogardus refused peremptorily to serve again, and Mr. Rulofson, of San Francisco, was elected in his stead. The other officers were re-elected.

It is almost needless to speak of the high esteem with which the retiring President is regarded by all who know him, and the many eulogies which were paid him by the speakers

were justly deserved. Mr. Bogardus has been a faithful worker and able manager, and his name has been a tower of strength to the N. P. A.

Of the incoming President, our knowledge extends only to the appreciation of his very excellent work, and we are satisfied so good a photographer can but be a good presiding officer.

The Association Pamphlet will be published by subscription, and we refer our readers to that for the full account of the meeting.

The stock dealers were present in force, and made a fine display of goods, noticeably of course, the American Optical Company. The many Stock Houses of the city were dressed in gala attire, and everything made as attractive as possible. The photographers themselves spared no pains to render the visitors welcome and provide good entertainment, and the kindness of our Chicago brethren will long be remembered by all who visited the Sixth Annual Convention.

POWDERED chalk, added to common glue, strengthens it. A glue which will resist the action of water, is made by boiling one pound of glue in two quarts skimmed milk.

Photography from a Sanitary Point of View.

BY DR. H. NAPIAS *

Preliminary Remarks.—The exercise of every trade and profession brings with it a series of ailments or peculiar maladies which are oftentimes dangerous, and sometimes mortal.

These *maladies of toil*, very numerous and very various, are due either to the nature of the work performed, to the character of the factory or office in which that work is undertaken, to the atmosphere that is breathed, and to the materials with which one has to labor; and if to these different causes we add those which are connected with one's mode of living, we shall have indicated the origin of nine-tenths of the maladies or infirmities that can afflict the human race.

The medical questions inherent to the sufficiency or insufficiency of one's means, as also to one's intelligence or ignorance, offer a wide and interesting field of study, and are, at the same time, of great importance from an economical and philosophic point of view, for it may be said that they exert the most direct influence and energy upon our health and upon the morality of our artizan classes. But these are questions relating to general hygiene, intimately connected with political and social economy, and which we shall not here discuss, as they lead us very much from the path we have proposed to follow.

Maladies, whatever may be their causes, have been provided by medical science with prescriptions and remedies, preventive, palliative and curative. The aim of medicine, in fact, ought to be, according to the nature of the circumstances, to prevent the malady if possible, to palliate its gravity, or to effect a radical cure when it has neither been foreseen nor prevented.

We call that portion of the medical art hygiene which relates more particularly to preventing the development of maladies by means of a certain number of precautions

* *Monsieur de la Photographie.*

indicated by experience and common sense, and by the teachings of science. Hygiene is, in a word, the art of preserving one's health.

Professional hygiene is the special hygiene of each profession; that is, the sum of means capable of destroying or lessening the bad influences inherent to such or such a form of labor.

From what we have said, the importance of hygiene may be easily understood, and it would be a good thing, indeed, if everybody understood its elements. It seems to us that such knowledge should form part of the preliminary instruction in schools, the study of general hygiene being afterwards supplemented, when a profession or trade has been chosen, by an acquirement of the elements of professional hygiene.

The profession of photography, like all others, has its inconveniences and dangers from a sanitary point of view. No matter whether those who occupy themselves with the art are, in general, better instructed than those who devote themselves to other labors, or whether the salary is ordinarily enough, and sufficiently remunerative, to guard them from the lower morbid influences, such as result from physical and moral misery—two things signifying indigence and ignorance—they are still exposed to a certain number of baneful influences, due to the circumstance that they have for the greater part of the day to live in an atmosphere charged with ethereal vapors, to manipulate noxious chemical substances, and to submit to other matters of a prejudicial character, which we shall allude to hereafter.

We propose, in this little work, to pass in review these different influences, to demonstrate their serious nature, and to indicate the best means to lessen their grave effects upon the system.

Of the atmosphere of photographic studios.—The presence in the laboratories and photographic work-rooms of a large number of chemical products, some of which are very volatile, have the effect of vitiating the atmosphere and charging it with foreign vapors. Among these substances alcohol and ether

stand in the first rank, and particularly merit our attention. Alcohol and ether, so constantly employed in photography, and so volatile in their nature, charge the air with their vapors; and the higher the temperature is, the greater is the quantity of vapor disengaged, a reason why the evil is aggravated in summer, and by the glazing of the studios.

The first effect of this mixture of alcohol and ether upon the air is to communicate to it a characteristic and penetrating odor, which exerts a different effect upon different people, but to which they are not long in completely habituating themselves. At the same time, some photographers, after practising their calling for some time, feel, they tell me, when they have worked long in the laboratory, a giddiness, and sometimes even a disposition to vomit, and, more often still, a bad headache. With others there is nothing of this kind, but the appetite diminishes, and sleep becomes bad and irregular, or sometimes is wanting altogether. With others, again, the continual inhalation of the ether vapor occasions cerebral excitement, which is not altogether unconnected with inebriation.

These few words suffice to show in what different ways an atmosphere charged with ether and alcohol vapors may influence the health of photographers. Sometimes this influence is quite imperceptible upon the patient himself, or, at any rate, he does not attribute to it the cause of the maladies which, in certain cases, may result from it, such as bronchitis, inflammation of the lungs, and congestion of the brain.

Whatever accidents may arise from living continually in a certain atmosphere, we may state that in order to avoid—or, in any case, not to augment—the bad effects, the first hygienic condition to fulfil is to partake but very moderately of alcoholic liquors. If the abuse of alcohol upon man (whatever may be his profession) exerts the most baneful of influences; if it is the origin of so many diseases, and also, we may say, of so many vices and crimes; if it is the main reason for most of the follies that are committed, since more than a third of the insane owe to it their loss

of reason; if, because of all this, it behoves every one to guard himself above all against the terrible habit of drunkenness, it is of much graver consequence to do so in professions like that of the photographer, who is exposed daily to the inhalation of ethereal vapors, against which he must fight and defend himself.

Alcohol absorbed into the system is supplemented in its action by the ether breathed through the nostrils, and thus the injurious effects of the former are exaggerated or are germinated in those who would otherwise have escaped them.

A sojourn at the café or tavern on quitting the studio may be replaced with advantage by a long walk in the open air; and in warm weather the best drink that we can recommend photographers to refresh themselves with is lemonade, seltzer water, or other acidulated liquors, which tend to annihilate the effects of the ether fumes. A good thing in the morning before proceeding to work, or at night on coming home, is a glass of claret and quinquina, made simply with *vin ordinaire* and yellow quinquina, which serves, on account of the tannin and quinine it contains, to counterbalance the effects of the ether, and, at the same time, excites the appetite and favors digestion. By preparing it oneself the cost is not very great, certainly much less than the Vermont sold at cafés and cabarets, a slow poison which people take day by day under the name of absinthe. If acid drinks do not suffice to get rid of the headaches with which photographers are so often troubled, a few drops of ammonia or vinegar in a glass of sugar water will very often succeed.

Finally, we may add that this course of sanitary regime will be materially aided by suitable ventilation of the studios, and by continual renewal of the atmosphere that is breathed.

General Aspect of a Photographer's Work.
We may commence this subject by saying that there is nothing in a photographer's every-day work that is of a nature to be prejudicial to health. There are, for instance, none of those movements incessantly re-

peated, none of those constant performances to be met with in other professions, which so often become the source of maladies and deformities. Nevertheless, those occupied with retouching, laboring at a work which tells upon the eyesight, may experience a tiring and weakening of the eyes. Retouching of negatives, especially, may occasion some physical troubles.

The evil is also met with in the case of photographers who prepare tiny microscopical impressions, either for scientific purposes, or as curiosities to be put in a piece of jewelry or on the head of a stick. A photographer who was under my care, and who, during the late war, was attached to the photographic service occupied with the reduction of microscopic dispatches, had his eyes in a state of congestion in the centre of the orbits, together with chronic inflammation round the eyelids. This photographer, who still occupies himself with microscopic photography, noticed that the inflammation became worse every time he fatigued himself a little more than usual, and woke in the morning with his eyelids sealed down with mucous matter. In a case like this it is best to use spectacles of ordinary blue or smoked glass, and to wash the eyes morning and evening with rose water, or even three or four times a day. But it is far better to try to prevent the disease by having recourse to proper precautionary measures. A simple washing of the eyes with fresh water whenever they have been exercised for a long time or very attentively, and adopting the precautions of not reading or performing any work during the evening, as likewise not smoking, and taking but little wine and coffee, and no spirits, are the best means to take under such circumstances. Measures such as these will have the effect of preserving the first and most important of our faculties—our eyesight.

Another injury may arise from the curved position assumed by the operator in the process of retouching. It may happen to the retoucher, as it does to the copyist, the writer, the clerk, and all those who work in this at-

titude, that they suffer from a pain between the shoulders, from cramp in the stomach, and injury, more or less great, to the digestion. But from these maladies there is little to fear by those who enjoy good health, who take moderate exercise out of working hours, and, living a steady life, have good food, and abstain from an excess of alcoholic drinks.

To resume: we may here repeat what we have already said, that there is nothing in the photographer's calling really injurious to health or to life. The danger does not lie here; it is rather in the ethereal atmosphere which those who follow the profession breathe continually, and to ameliorate the effects of which we have recommended some precautionary measures to be taken. Danger lurks likewise in the daily manipulation of certain irritant and tonic chemicals, a subject with which we shall now proceed to occupy ourselves.

On the Action of Chemical Substances in General.—All chemical products exercise disturbing effects upon the human system, and these actions, if wisely regulated, become in medicine of very great assistance; but if such compounds are employed ignorantly, or in too large quantities, they are greatly prejudicial to health, and bring about what we term a poisoning action.

As a matter of course, all chemical compounds do not possess the same amount of energy in their action, and there are some which are only injurious when taken in wholesale doses, so that it may be asserted no fear need be entertained from their use. But there are others, again, which act upon our systems with extreme violence, either by corroding the tissues with which they come into contact, or by penetrating deeply into the body by rapid absorption, and directly influencing the circulating organs, or, what is more important still, our delicate nervous system. Of these truly poisonous agents there are several in use by photographers, and others are daily coming into play. Among them may be enumerated: cyanide of potassium, nitrate of silver, bichromate of potash, bichloride of mercury, &c. We pro-

pose to say a few words on the subject of each of these preparations.

Cyanide of Potassium.—Cyanide of potassium is employed in the form of a solution for fixing images upon collodion. Photographers, also, are in the habit of using the noxious drug for removing from their hands nitrate of silver stains of all kinds. This latter is a most dangerous and reprehensible practice, for the salt is, without doubt, one of the most violent poisons we have, even in small quantities, and it is, moreover, a substance easy of absorption, and one so sudden and rapid in its action that it is difficult for medical aid to step in time to stop its baneful effects. It would be desirable, indeed, that such a compound should disappear altogether from the photographer's laboratory, and other chemicals are not wanting to replace it.

The energy of this poison is such that it is only necessary for a cut to exist, or an abrasion of the skin, in order to bring about absorption, when a solution comes in contact with the hands, and in this case, results of a most serious character at once ensue.

Photographic operators who so often work with the dangerous substance, and in a manner, too, both thoughtless and imprudent, often have their fingers chapped and cracked in winter time by the frost and damp, and the existence of such wounds in the hands during the manipulation of cyanides opens the door to fatal accidents. And accidents from this poison are by no means rare. They do not, it is true, always bring about death, and the greatest number are fortunately of a mild character, but there are cases of paralysis and other nervous diseases which are the effects of such accidents, and which should cause operators to reflect, and put them on their guard. Unfortunately they do not heed the lessons thus given, and the cases of accidental death that have come about by the imprudent employment of cyanide of potassium do not, of themselves, suffice to correct the habitual carelessness of photographers in the matter.

Let us add, finally, that there are to be

found among photographers, as among other classes, unfortunates who are so unconscious of duty—so oblivious of the dignity of human nature—that they quit voluntarily their place in the battle of existence, desert life, and commit the crime we call suicide. These have looked around them, among the materials in use in their profession, to see which of them all would the swiftest, most surely, and least painfully aid them to attain their sad and miserable end; and it is to cyanide of potassium that they most frequently have recourse.

It is because photographers are liable to see and hear of cases of poisoning by cyanide, absorbed either voluntarily or involuntarily, that we deem it right to indicate the symptoms of such poisoning, and the means for relieving it.

The first effects of cutaneous or digestive absorption of cyanide of potassium, even when taken in minute doses, are great pain in the region of the heart, headache, giddiness, deafness in the ears, sleepiness, and a painful respiration, which is sometimes slow and sometimes fast, but which is always interrupted by profound sighs. If the dose is larger, and especially if poison has penetrated into the stomach, the patient experiences a bitter taste in the mouth, a burning in the throat and stomach, a desire to vomit, a great increase in the secretion of the saliva, and diarrhoea. At the same time the pulse is feeble, and even insensible; the eyesight is troubled, the pupils are dilated, and the eyes appear enlarged. A cold perspiration suffuses the body.

In very grave cases a general prostration is manifested, interrupted from time to time by convulsions. Every movement ceases, and death ensues in a syncope. All these phenomena come to pass with terrible rapidity, allowing one barely time to observe them, much more to interrupt them.

After a cure has been effected, whether by reason of the insufficiency of the dose, or, artificially, by reason of prompt and energetic remedies, it is never altogether complete. Nervous affections come on, and remain for a

considerable period; frequent giddiness in the head is experienced; one is troubled with pain in breathing, and sometimes a partial paralysis of the muscles ensues.

Whenever an accident happens from cyanide, from imprudence—say, for instance, in the case of an operator placing his chapped and broken hands into cyanide solution—the first thing to be done, in the case of a symptom of giddiness or fainting being felt, is to wash the wound in chlorine water—that is, water saturated with chlorine at the ordinary temperature. The patient should also immediately take two or three grammes of the same in a glass of water without waiting to put a piece of sugar into it. He is at once put to bed, and covered with warm blankets, hot water bottles being placed at his feet and along the whole length of his body; or, if a bed is not handy, he is placed on the first couch or sofa, and wrapped warmly in coverlets or garments. The windows are opened everywhere, for while it is necessary that the patient should be warm, it is requisite also that he should have plenty of air, and that it be very pure.

In the meanwhile a messenger has been despatched to the nearest chemist's for a few grammes of laudanum. Tea or coffee is prepared, and sugar and rum or brandy are obtained, and the patient receives a cup of tea or coffee with ten drops of laudanum and one or two spoonfuls of any alcoholic liquid, such as rum or brandy; *kirschwasser*, however, must on no account be given. A cup of tea or coffee with the same quantity of laudanum (ten drops) may be given three or four times running at an interval of a quarter or half an hour.

If the accident has been marked at the commencement by very serious symptoms, and if the cyanide has been taken internally, then, without hesitation, five grammes of chlorine water should be given in a glass of water. The patient is put to bed, with plenty of warmth and air, as just described, and he should be allowed to breathe frequently over a vessel of chlorine water placed under his nose. Every quarter of an hour a

cup of tea should be taken, with cordial of some kind, and ten drops of laudanum (not more, however, than four or five cups being given), and every five minutes a teaspoonful of the under-mentioned potion is administered:—

Chlorine water,	-	-	5 grammes
Chloro-hydrate of ammonia,	2	"	
Sugar water,	-	-	250 "

As soon as the patient seems to be growing better, the laudanum in the tea is suppressed, and the potion is taken only every quarter of an hour, and afterwards every half hour. This treatment does not, however, remove the responsibility of sending for a medical man, who, on his arrival, will continue or modify the regime according to discretion.

One of the antidotes against cyanide of potassium is said to be a mixture of hydrate of protoxide and peroxide of iron. It is, no doubt, a very good specific, but, besides the fact that it is not usually at hand, it is, we think, scarcely so efficacious, nor so easy to absorb into the system, as chlorine.

Ammonia has also been mentioned with favor, and with some right too. If chlorine is not at hand, it would be well to get the patient to breath ammonia vapor, and to administer to him fifteen or twenty drops of liquid ammonia in a glass of water.

The application of cold water to the vertebral column seems to have succeeded in some cases of poisoning by prussic acid and the cyanides. If we do not connsel such a course, it is because it must be conducted by a skilful hand, and only in cases where the medical man thinks such a course desirable. Applied without care, a chilling action might be produced, which favors the noxious action of the poison.

The means we have recommended—chlorine, laudanum, tea and coffee, with rum—are not only the best and most efficacious; they are also those whose employment we consider the most simple and most convenient.

But it must always be borne in mind that cyanide of potassium always acts with extreme rapidity, and that the delay of a minute,

or even a second, in the application of the remedy may be altogether irrecoverable. For this reason we would suggest that in all laboratories and studios there should always be kept a supply of chlorine water and laudanum ready in case of accident.

It is only, we repeat, by having recourse to prompt and immediate action that there is any chance of combating against poisoning by cyanide of potassium, until that dangerous compound is banished altogether from the photographer's studio. But it is not only on account of accidents that we should be glad to see cyanide of potassium disappear from the chemical laboratory, for accidents happen from ignorance and imprudence, and, consequently, may be avoided; it is by reason of its dangerous influence at all times, for the vapors of hydrocyanic acid and iodide of cyanogen which are disengaged in photographic manipulations are also poisonous and injurious to breathe. Every photographer knows this, and all are cognizant of the headaches and giddiness they give rise to. Ammonia may be beneficially used to give relief in these cases.

(TO BE CONTINUED.)

"OUR BOYS."

BY F. WALLER.

ALMOST every subject in connection with Photography, has been written upon by able writers, until it would seem that there is little more to be said. But the theme I have chosen, is, I believe, as yet an unharvested field; *Our Boys*, I mean the genus boy, which is peculiar to photograph galleries. My memory goes back through many years, and I see visions of different specimens of rascality, until I halt at "Tony." Tony was a boy of great parts—few boys, who have since filled his useful sphere, ever succeeded in doing nothing so carefully as he did, and with such a grave and pre-occupied air as defied rebuke. I was then a very enthusiastic, if not a very successful experimenter in chemistry, and Tony was invaluable as a subject to practice upon. By some freak of

nature, Tony had a patch of white hair in his otherwise brown head, and he wanted it dyed. Here was an opportunity I was not slow to avail myself of. I dyed that patch of hair every conceivable color, except that that would match with the rest; red, black, and a beautiful sea green. I often attained but the right color never. Tony was passive, if not hopeful, and no color ever totally overthrew his gravity, no matter what effect it had upon the rest of us.

And it did have an effect. Our printer had an uncertain and incipient moustache of a decided red; so, surreptitiously obtaining my choicest receipt, one that had worked wonders on Tony, he, in the solitude of his chamber, on a Saturday evening, dyed his moustache with a conglomeration of silver, pyro, &c., and went to sleep a proud and happy printer. But Sunday came, and that unfortunate toner had to hang around byways and back doors all day with a rusty green moustache. Monday morning, with confidence in my ability as chemist, he applied to me to take it off, which I did, together with most of the skin upon his upper lip.

After Tony's promotion came a succession of boys of all kinds, of no particular note, until Henry presented himself, and his was a figure I can never forget. He was of Teutonic extraction, and his attire when he first wanted to learn the art, consisted of a pair of his father's trowsers, rolled up at the bottoms, a swallow tailed coat, and a fatigue cap. He was as round as an apple, and no one, to look at his stolid countenance, would ever suppose he would turn out the character he afterwards became.

Joined to a deep-rooted aversion to washing glass or any work, he had the habit of muttering to himself, in a manner we could none of us understand, until it came out at last that Henry was *spouting*. Every night he went to the theatre, in some way, and all day long he thought over "Jack Sheppard," and kindred dramas.

One day things were brought to a climax—it was the good old days when it was "stand and deliver"—in twenty-four hours every-

one stood for their cartes, and iron-clad negatives were the only kind. I was making a lady's photo in the orthodox way, and was standing "timing," with the cloth in my hand, when Henry rushed into the skylight-room with a terrific shriek, as "The Hunchback of Notre Dame." It is needless to say my subject jumped a few feet out of focus, and the "Hunchback" was ignominiously consigned to the coal-hole, there to indulge in very unheroic tears. I was angry enough at the time, but I have often laughed since when I have thought of the lucridous figure he presented that day.

And the next boy worthy of mention, was a great tall Irish boy named Tim. Tim had learned to box, (or thought he had), and all day long he was sparring at the wall, or making passes in the air. We were all more or less infected with the boxing mania, it being the time of the Heenan and Sayers fight, and we purchased a set of boxing gloves, took to swinging head-rests, and in other ways developed our muscles as well as our plates. None of us, however, could box like Tim, and he came to have a great opinion of his talents in that direction, but his pride was doomed to have a fall. I wanted a background re-painted, and a painter came to do it, and with that painter a boy, a quiet-looking boy, long in the nose, the arms, and the legs. Tim went ambling around as usual, unconscious of his fate, and sparring at everything until he sparred at that boy.

"He was busy just then," he said, as he stirred the paint pot, "and he didn't know anything about boxing, but when he was through he didn't mind trying."

Tim kindly offered to teach him, and assured him it didn't hurt; and it didn't, at least not that painter's boy, for he knocked poor Tim up and down that skylight-room, so that for the next week his head looked like a boiled lobster. During the remainder of his stay, poor Tim never offered to box any one.

And then came Guy, who had read dime novels until he ran away from home, invested the whole of his savings' bank into a second-hand suit of sailor's toggery, and after

a terrific voyage on the canal landed in our gallery, very hungry and forlorn. A good breakfast set him up, and, being invested with the insignia of his office, a broom, a piece of chamois, and a plate vice, Guy was ready to indulge his romantic tendencies, which he did straightway, by falling in love with the lady in the show-room.

His was not a violent passion, however, for, though he was near her all day he never opened his mouth, but spent what money he could spare from luncheon in note paper and postage stamps, to send her letters. He has been known to sit on the opposite kerbstone and watch this lady's house for hours at a time, "and yet he never told his love," and it was well he never did, for the lady was old enough to be his mother. Finally, the lady married and left the gallery, and the business ceased to have charms for Guy, who invested his spare money in any elegant brass mourning ring, with the device of a broken heart, and went West with the Children's Aid Society.

Painting Magic Lantern Slides.

THE following are the methods employed by the artists whose profession is the painting of magic lantern slides:

1. Use transparent colors, like Prussian blue, gamboge and carmine. These will give the three primary colors, and by their mixture to other tints. Apply with a brush, and a transparent drying varnish, like dammar varnish. Allow one coat to dry before applying a second. Considerable aid can be derived from stippling, the color being strengthened, where necessary, by applying it with the point of a fine brush. The colors must not be used too thin.

2. Flow the glass plate with albumen, after the manner of photographers, and paint with aniline colors. This process gives great softness and brilliancy to the pictures, but they are apt to fade.

3. Paint with water colors and then flow the entire surface with Canada balsam, covering the painted side with a glass plate.

4. Use water colors, but mix them with turpentine, instead of water, and work rapidly

ON SENTIVENESS.*

On the first glance at this heading, some of my readers may be in doubt as to what it refers; and so, to prevent misunderstandings, I may as well state that nothing personal is meant by it, although many of our artist brethren possess very often a degree of sensitiveness for praise or blame, which I should like to see transferred to thin collodions. But of this over-sensitiveness on their part I do not desire to speak just now.

Occasionally we have a collodion praised as something extraordinarily good, which, if tested by several photographers practically, is the subject of different verdicts. One is enthusiastic over its properties, another is cold, and the third gives no opinion one way or another. Contradictory judgments of this kind may result even when the exalted collodion really possesses good qualities. I myself once received a good sample of collodion which I shared with a colleague, and this gentleman did not by any means agree with me in the super-excellence of the compound. "It is good enough," he said, "but my own formula yields a material quite as sensitive." On examining into the matter I found that he was not altogether wrong in his view. The manipulation of different operators varies a great deal. Many are in the habit of exposing for but a few seconds in portraiture photography, whilst others again, even with a good light, give a period of from twenty to thirty seconds. To the latter class belonged my friend, and he proved to me that, with his mode of working, the collodion I had given him did not act any more quickly than that prepared by himself. We then exchanged collodions, and I tried his material, giving short exposures, as was my wont, and then I found that his collodion was considerably behind the newer product. To find out where the fault existed, I made a few pictures with different exposures with the two preparations, and then I discovered that, in fact, my collodion required ten seconds less exposure than the other; but that when, with both materials,

an exposure of thirty seconds was given, then the other collodion caught up to mine. Two plates which had received long exposures exhibited little difference in the nature of their film; although the two collodions, if exposed for a brief time only, were widely different.

At the same time the character of the pictures in the two plates was differently marked. In my collodion the lights were very strong, almost over-exposed, while in the other they were more transparent and more finely graduated. The last point is of importance. How often do we complain that the white linen and white garments appear as a patch in the picture! According to my view, details in the lights are just as important as details in the shadows, and a collodion which shows fine gradations in the lights will exhibit finer half tones than one which renders high lights too densely.

But it may be said that if sensitiveness for the shadows is wanting, then the picture becomes hard. This is quite right; but then I assert that with a not insensitive, but less sensitive collodion, harmonious pictures may still be produced when the shadows in nature are lighted up as much as possible during exposure. A hundred instances in practice prove this. I could cite many a skilful photographer, whose collodion is not of a most sensitive nature, and who nevertheless produces excellent portraits with it. Collodions which show the greatest sensitiveness give the high lights too dense, as a rule; they are much to be recommended when working in a dull light, because in this case the high lights are usually flat enough. If, however, a strong source of light is at hand, and especially bright objects to be depicted, then a less sensitive collodion is to be preferred, for it gives more details in the lights. Only, care must be taken that the shadows are properly lighted up. Reutlinger, of Paris, who at the Vienna Exhibition showed some very beautiful portraits with finely detailed white drapery, works in different lights with different kinds of collodion.

It would be an important matter if manufacturers could produce us a collodion which

* *Photographisches Notizen.*

would be excessively sensitive for the shadows but not in the same degree sensitive to the high lights. Whether such apparently contradictory qualities could be imparted simultaneously to a collodion is a question. The addition of bromine salts will not advance matters. These act very well as regards sensitiveness for shadows; but if too much is added, then the sensitiveness of the collodion decreases altogether. An increase in the amount of pyroxiline also increases the sensitiveness of a collodion, but, seemingly, in a greater degree for the lights than the shadows.

I would, however, recommend nobody to tamper with a good commercial collodion, for it is seldom that any good comes of it. I know people who are continually altering their receipts, and swear, at every new trial, that the philosopher's stone has been found; and yet, when it comes to taking a good portrait, they invariably fail. It is best to stick to one kind of work where it is a question of business; at any other time one may experiment as often as time and opportunity permit.

Those who desire to modify highly sensitive collodion which gives too dense lights, may dilute it with one-eighth or one-tenth its volume of ether. The collodion will then work more slowly, and render the high lights more delicately.

On the Stability of Collodion Films.

BY DR. H. VOGEL.

I HAVE made a series of trials on the influence of quality and quantity of cotton, of development, fixing solutions, varnishes, preliminary coatings of plates, &c., on the stability of films, in the interest of the forthcoming observations of the transit of Venus, and I give here a short account of my results, which may be, perhaps, of some benefit to the observers. The details of my experiments may follow in the next.

The contraction of films depends very much on the quality of cotton. The cotton which delivers a thick collodion and tena-

cious film generally contracts much. I have tried different cottons, and found that the contraction was the least in the "celloidin" cotton of Schering, Berlin. This is the best for astronomical purposes. The contraction depends upon the quantity of cotton in the collodion. The contraction is diminished in a remarkable degree by dilution with alcohol and ether. The collodion of Maun, St. Petersburg, with two per cent. of cotton, gives a contraction of $\frac{1}{4000}$; diluted with half its volume of alcohol and ether, it shows no further remarkable contraction.

3. The adhesion of the film on the glass is of great influence. If on any part the film loosen the glass during washing or the film is injured a little, there is a tendency to contraction or variation of the preliminary dimensions. Therefore, it is necessary to work on plates with a preliminary coating of albumen or india-rubber. On such coating the film does not loose the surface, and even a little damage is without influence. Only albumen dry processes do not want any preliminary coating, because the films with the albumen preservative are very stable.

4. All preparations which induce the film to loose the surface (as gums) are of bad influence.

5. Acid pyro development induces strong contraction of the film if it lays on plain glass; but not on albumen plates or plates coated with india-rubber, if sufficiently exposed. Under-exposed plates, very long developed, change in a remarkable manner.

6. Alkaline development gives no tendency to contraction.

7. Dry plates are more stable than wet plates. The best results I got with albumen plates (Fothergill) and with morphine plates on preliminary coating with india-rubber.

8. Some varnishes change the dimensions of films; mastic varnishes the least. The experiments in this direction are still continued. One sample of varnish (Beseler varnish, made in Berlin) gives no change at all.

9. Fixing is of no influence on the dimension of films if there are not bodies like gums, which induce blisters.

For coating plates with india-rubber I dissolved one grain rubber in one hundred grains chloroform, separated the clear portion of the whole after three days, diluted with ten volumes pure volatile benzole, and filtered. The plates are washed, dried, brushed, and coated with the rubber solution in the ordinary manner.

Iodide of Silver in the Dipping Bath.

BY DR. H. VOGEL.*

I PROPOSE now to cite a few examples of how one and the same formula will yield perfectly different results in the hands of different operators, and how the slightest of modifications are capable of bringing about the widest discrepancies in one's work.

For the last seven years I have employed a formula for the preparation of collodion for my own private use. From different sides I have been asked for information on the matter, and I have given particulars to all who desired them. Many practical photographers in Berlin worked with it successfully, and at last I published the whole proceedings. I will give the formula here.

Eighteen grammes of iodide of cadmium were dissolved in 270 cubic centimetres of alcohol, and seventeen grammes of bromide of cadmium likewise in 270 cub. cents. of the same. Both solutions were filtered, and five parts of the iodized salt solution were mixed with one part of the bromine salt solution (the quantities taken by measure), and eighteen parts of normal collodion made with two per cent. of pyroxyline were added. The collodion was then ready for use.

I am far from putting this collodion forward as a universal instantaneous collodion. I only wish it to be understood that it has given me good results, whether as regards the clearness and detailed character of results, or the sensitiveness of the film. It has, too, been kept for years in the studios here.

Lately a gentleman in the provinces whom I knew to be a most skilful photographer informed me that he had also essayed my col-

lodion, and could make nothing of it. It yielded, so he said, too thin a film, was probably too weakly iodized, gave no vigor to the picture, &c., &c. In proof of these complaints some plates were forwarded taken with my collodion, together with others produced with a commercial sample of instantaneous collodion, for the purpose of instituting a comparison. The sight of these was enough to make anyone blush. The images prepared with my collodion were grey and flat; those with the other brilliant and vigorous; and the assurance was appended that both collodions were worked in the same silver bath, with the same developer, and the same intensifier. It availed nothing sending my correspondent a collodion prepared with my own hands, which had given me brilliant results, for the defects still remained; until one day, travelling in the neighborhood, I visited the gentleman in question, and prepared some plates in his presence.

At once the cause of the error proclaimed itself. The plates prepared with my collodion came perfectly pale and exhausted from the sensitizing solution, and it was clear that the dipping bath contained very little iodide of silver, and it was for this reason that it attacked the film. I asked here how he iodized his bath, and he told me by leaving a collodionized plate in the freshly made-up solution during the night. This method of iodizing is one very frequently employed, but it is not a very trustworthy one, for no one knows how much iodide of silver goes over from the film into the bath. Such rule-of-thumb practices I do not like. I always want to know the constitution of my bath, and for this reason I iodize the silver solution in the following manner, I take—

Nitrate of silver,	-	-	100 grammes
Water,	-	-	1000 "
Iodide of cadmium solution,	25	cub. cts.	
Nitric acid,	-	-	8 drops.

The iodide of cadmium solution is made up of one part of iodide and a hundred parts of water.

The nitrate of silver is in the first place dissolved, and the iodide of cadmium solu-

* *Photographisches Notizen.*

tion is then added while the liquid is being thoroughly stirred. A precipitate is at once formed on the addition of the iodide, but this soon disappears again. The bath thus obtained is about three-quarters saturated with iodide, and any attack upon a collodion plate is no longer to be feared.

I at once prepared a bath of this kind, and forthwith proceeded to sensitize a collodion plate of my own with this solution. It turned out faultless, thus affording proof how a very small circumstance, as the silver bath lacking a slight quantity of silver iodide, is sufficient to make the obtaining of successful results impossible. When commercial collodions do yield good negatives in such baths, it is because they contain, as a rule, a large proportion of sensitizing salts. For this reason they sustain an attack from the dipping bath with greater impunity, for there still remains always sufficient iodide of silver to give an intense image.

In time, of course, matters alter. Gradually the bath, after a series of plates have been dipped in it, becomes more and more saturated with iodide of silver, and at last it contains so much that the plates are not attacked, but, on the contrary, become denser, the iodide of silver precipitating upon the film.

The condition of the plates is then totally different to what they were when the bath was fresh, and eat into the collodion film. Such great contrasts are not met with when a moderately salted collodion, and a bath prepared accordingly to my formula, are employed. Both extremes are then avoided, for the super-saturation of the bath with iodide of silver comes on more slowly with a collodion containing less sensitizing salt.

Many misconceptions arise, too, in respect to the quantity of iodide of silver contained in baths which have been renovated and doctored. It is customary to precipitate a portion of the iodide of silver by dilution with water. The more water is added, the more iodide of silver is thrown down. Not unfrequently, the amount that remains behind is so insignificant that the bath again

attacks the plates. A bath which is correctly iodized will allow of an addition of two or two-and-a-half cubic centimetres of water to every ten centimetres of bath before it becomes permanently turbid. In this way the degree to which the silver bath is iodized may easily be ascertained. Ten cubic centimetres of the silver bath are put into a glass vessel (a graduated measure is best), and distilled water is added drop by drop, agitating the liquid meanwhile. A point is soon reached when the precipitate formed does not again disappear on shaking, and then the addition of water is discontinued. Too strongly iodized baths will not bear the addition of so much as two centimetres, while one containing the iodide in small proportion will allow of the addition of two-and-a-half centimetres. The latter should be tested by the careful addition of a little iodide of potassium solution.

Finally, I should mention the important circumstance that iodide of silver is capable of being dissolved in much larger quantities in a cold bath than in a warm one; and for this reason it is that at a high temperature the iodide is more apt to be precipitated from a dipping bath than in a low one—that is to say, more readily in summer than in winter. When the crystalizing out of the iodide takes place, then, as every photographer knows, there appear endless little pinholes in the collodion film.

I have now for more than ten years past pointed out this decrease of solubility of iodide of silver in a warm solution, but one still sees the fact ignored in so many manuals and handbooks of photography, that it does good to come back now and then to the oft-repeated maxim.

ON LIGHTING,

BY F. WALLER.

So much has been written upon this subject, so many rules and directions laid down for the pupil to follow, that one might well give up in despair of finding any suit-

able and practical set of rules among them all. The fact is, it is impossible to be governed in this matter by any set of arbitrary rules. The photographer who seeks information upon the subject can only obtain it by actual experience in his skylight room, there the intelligent operator can learn, if he exercises his taste and eyesight, the many and varied methods of lighting a subject to the best advantage.

It is not my purpose to attempt what I have already described as an impossible task, but merely to jot down a few things which I have noticed, which may, perhaps, enable some one to see these effects more readily when presented to their eye.

The principle difficulty with myself, and I suppose it is so with others, was that, for a long time, I attempted posing and lighting without understanding what I was trying for—if, indeed, I do so now. The effects of light and shade presented no idea to me, further than the effort to get as much of the one, and as little of the other, as possible.

I had, therefore, to unlearn what had become habit—a more difficult thing to do than to acquire in the first place—and this is one reason why we see many new men outstrip old operators in this department (specially.

In my opinion, the extreme use of curtains, shades and screens, is a mistake; and the more nearly the light is pure and natural, the more artistic will be the effects. As art is but nature copied, very many of our finest photographs, made by some of our best operators, have this defect of unnatural lighting, caused by the improper use of reflectors. I know how necessary it is to secure transparency of shadow in a photograph; how we are debarred from using, to a great extent, those art rules which apply to portrait painting by the absence of color, and the necessity of photographing the shadows, not as we see them often, but as our imperfect means of rendering them allows. But reflection, while of great value in proper subservience, becomes a curse instead of a blessing when used injudiciously.

As an instance of this, I had an imperial

card to enlarge in the solar camera, which gave, as a contact print, a very fine specimen of a Rembrandt; yet, when enlarged, the features were so distorted by the immense amount of reflection used to soften the shadow, as to be worthless as a portrait.

One of our best-known artists, Mr. Sarony, I believe, scarcely uses a screen at all, obtaining just the light he wishes by moving the subject until satisfied. Mr. Kurtz, again, though he uses curtains and screens, makes them subservient to correct taste; so that no matter in what way his subject is lighted, the light will always be found to come from but one direction, and fall in but one way. We cannot all hope to attain the position of these masters, but we can follow in their footsteps, though at a distance, and profit by study of their productions.

The most common difficulty, attendant upon the extreme use of reflectors, is the quantity of false lights produced in the eyes, and this is extremely difficult to avoid in making a shadow picture, but still it may be by observing that there are no extraneous lights or reflections, other than those coming from the proper directions, and under complete control. By placing the sitter upon a small movable platform, making up your mind exactly what you want, and not resting satisfied until you produce it; there is no light so poor or so difficult, but what fine effects may be produced. Next in consideration, after the eyes comes the high-lights. See that the light falls properly upon the forehead, and upon the nose, so as to clearly define that organ, and not have it blend indistinguishably with the cheek; the point of the chin should be just touched with light also, and after seeing all these things properly done, you may consider the shadows. If the preceding points are right, there will be found little need of reflection as a rule, and then this must be applied very cautiously, so as not to undo the good effect of the previous efforts.

There are some faces which are in a degree luminous, and others the reverse. A little thought will soon enable one to decide how

much depth of shadow one face needs, how much softening the other.

Great use is made in judicious hands of powder, and it is a wonderful aid for some complexions, but as I understand its use, it is for softening the texture, rather than for producing light.

It is my idea that the light is generally allowed to fall too directly down upon the subject instead of at an angle, and in spite of head-screens and their advocates, nothing but harsh results can be obtained from too much top light, and these results become merely flat when screened off.

The drawings and paintings the world has for ages admired are the lights of nature copied, not smothered and stultified; and while we may not, perhaps, imitate their effects exactly, being perhaps too bold for photography, let us endeavor to match their truth and fidelity, wherein lies their great charm.

Some Causes for Hardness in Photographs.

BY W. E. BATHO.

ANYONE whose fortune it may have been to look over a collection of "Rembrandt" pictures produced by different men, and which pictures have not been sophisticated by the retoucher, will have noticed the hardness in some, while in others, taking them as studies of light and shade, nothing was left to be desired. It cannot for a moment be supposed that these men lighted their models so harshly as appears in the result. Credit must be given them for knowing better than that; and it was upon looking over a number of such pictures, sadly deficient in those delicate half-tones which it is the charm of photography so faithfully to render, that I was led to seek for some other cause for the effect than that of careless lighting on the part of the operator.

The printing department was the one where it was first suspected this might arise, and no doubt it is here where many—perhaps it may be said most—of our errors are

made; for printing is commonly looked upon as an operation so mechanical as to be entrusted to those who have but little skill, although it will be found that it pays best, in this and every other department, to obtain the most skilled and necessarily dearest labor.

Silver baths of varying strengths were used, printing in strong and weak lights were tried, but nothing beyond that already well known was elicited; and the conditions that will enable a printer to obtain a soft or hard print from the same negative have been so often laid down that it would be a useless waste of space to go over it again.

If anything in the printing department may be named it is that of fixing. The common practice is to weigh out a given quantity of hypo. and immerse prints in the solution thereof for a given time, totally irrespective of any variation in the quality of the paper, although it is well known that thick and thin papers have very different degrees of porosity—the one allowing the hypo. to permeate rapidly through its pores, the other offering more mechanical resistance, and so retaining the unaltered chloride of silver for a longer time in its body. Any person who may have left a print in the hypo. all night will have had unmistakable evidence of the solvent powers the solution has on the half-tones of the image, and therefore it wants but little to convince that the shortest immersion consistent with perfect fixation is the best for preserving the picture.

The only difficulty is to know "when is a print fixed." From fifteen to twenty minutes is, perhaps, the time generally employed; but this, I think, rather long in a general way. Practically, in making a print, I never time the fixing. This may be deemed wrong by some, but having done so for a long period, and having hitherto found no evil effects, it will take an accumulation of arguments to make me do otherwise.

The method followed, and the reasons for it, are as follows:—When a negative is fixed you watch it until the whole of the unaltered compounds of the iodine and bromine are removed, and then *at once* you proceed to wash,

in order that the fixing agent shall not attack the half-tones; and why not do the same with your prints? It is just as easy to ascertain when the unaltered chloride is removed in the print by holding it so as to view it by transmitted light as in the negative; and when one print is found to be fixed remove the batch to the washing water, no matter whether the immersion has been five or fifty minutes. By doing so you certainly will have the minimum of harm done to your half-tones; and, should you doubt the perfect fixation, try two prints—one with the ordinary immersion, and the other with that described. Wash them together where they will receive the same treatment, pin them up, and see which goes first.

Still other causes must exist for the hardness. It is not reasonable to rest with an explanation that depends upon assuming carelessness on the part of the printer; for, taking the present standard of excellence of our best men, and an average number of their prints, it is a reasonable assumption to say that they faithfully represent the detail existing in the negatives from which they are produced, and thus we are driven to the conclusion that the fault of hardness exists in the processes that end with the production of the negative, and must seek for them here. From this, as a starting-point, a number of experiments were performed, and those having sufficient interest and bearing on the subject in question will be mentioned.

The first thing was to obtain a test object, the conditions to be fulfilled being that every gradation of tone from what may be photographically termed black to white should be represented. Lest it might happen that any image, although correctly lighted at one time, should have the conditions altered by a passing cloud, it was thought better to seek some object where gradation did not depend upon unequal illumination, and a strip having the varieties of color necessary was at last decided upon, the highest light being the white of the paper. A new nitrate of silver bath was prepared thirty-five grains to the ounce, tested, and proved to be in good condition.

A developer was then prepared, and so balanced as to develop and give sufficient intensity in the highest light to preserve sensitized paper so long as it was required to give correct value to the blacks; that is, a negative was obtained giving printing vigor without resorting to redevelopment. When a print was obtained from a negative of the strip, and so produced, it was found to be a faithful copy of the original. In the scale of tones each had its representative in the copy. Clearly such chemicals will faithfully reproduce any image; and should any defect—such as is under discussion—be found, it should be looked for in defective lighting rather than in the dark room.

Another bath (also thirty-five grains) was now tried—one that had been in use, and working well. Its age makes but little matter, as a much clearer idea of the work it had done may be given by saying that to make the developer flow easily one drachm of alcohol to sixteen ounces of solution was required. The developer was regulated with regard to intensity in this case as in the former, and to save further repetition it may be said the same was carried out in every case.

When a negative was made with this bath, and a print therefrom produced, a very slight falling off was noticed. The extremities of the scale were right enough, but in the lighter tones the reproduction was not so truthful, the white appearing to extend farther down in the copy than in the original. Here a step was made in the direction of hardness; still it was so slight that it was thought it would have escaped detection in any ordinary manner. Various modes of development were tried; but the result was the same, the tendency in every case being to hardness, and the one where the first development gave the required density had the least of this objectionable quality. It may be added that, as regards acidity, the baths were in every case equal, so far as could be judged by the color of a strip of litmus paper on being moistened with each of them.

Another bath was now tried which was

well charged with ether and alcohol from long use, so as to require four drachms of alcohol to the sixteen ounces of developing solution. Otherwise the bath was in good condition, and yielding average negatives: but, when tried with the strip, it failed in a most marked manner, a decided want being shown in the reproduction of the lighter tones, and the negative was, when compared with the first, certainly hard.

Reasoning from these experiments—although others were performed, but their bearing being the same, and it is thought the above are sufficient—the inferences were that a bath from its birth deteriorates, and shows the deterioration primarily in the loss of power to reproduce half-tone. The first part of the proposition no one will deny, and the latter portion the experiments enumerated go to establish; thus it seems that, practically, a bath ought not to be worked beyond a certain point, and that point each of us must establish for himself. A good rule I find is the amount of alcohol required in the developer.

Bearing this in mind, there is a great probability that the hardness in many of our Rembrandt pictures is owing to defective chemicals rather than that of lighting; for a bath giving fair ordinary work, when tried a subject requiring a great deal of half-tone to reproduce it nicely, may, and does, fail. With white drapery, for instance, I have never been able to please myself except when using a new bath.

The practical teaching here is to reserve the baths which are in the best condition for such work as may require them, and, as they deteriorate, let them go the round of their lives until their days are ended with a dose of common salt.

It would be a great boon if all the disadvantages attending the use of aqueous solutions of silver could be dispensed with, without bringing in their train other evils to neutralize the gain. It may be that ultimately an emulsion process will supersede the ordinary wet one; for, when it is thoroughly demonstrated that the plates are as

rapid, *develop as quickly*, and give as good results, there is not a photographer in the kingdom who would not practice the process professionally in place of the one in use. But until that time, however, we must run on in the old groove. As to the methods of restoring old baths—for if it be possible to make an old bath into a new one few would spare the trouble if a practical means be advised—of course they must fall under two heads. viz., utilizing them in solution, or precipitating and ultimately redissolving the precipitate. Upon which may be the best a variety of opinions may exist; but a discussion of how to “give new baths for old ones” may be deferred till a future time.

PROGRESS OF PHOTOGRAPHY.—It would require a volume to set forth the many remarkable applications and processes, even of comparatively recent date, involved in this astonishing art. Something, however, may here be added in regard to the rapidity of photographic action. It is estimated that 1-27,000th of a second is sufficient to fix the solar image, yet this is a long time in comparison with that in which photographs are taken by the electric light. Experiments have shown that the duration of the illuminating spark does not exceed 1,000,000th of a second, yet a clear and distinct photographic image is obtained by a single electric discharge. By this means may be shown the real form of objects to which a deceptive appearance is given by their rapid movement. Thus, if a wheel on whose side any figure is drawn in conspicuous lines be made to rotate with the greatest possible velocity, the figure will present to the eye only a series of concentric bands of different shades; but let it be photographed by the electric flash while in motion, and the wheel will appear stationary, with the figure perfectly well defined.—*N. Y. Times*.

WIPE your dark slide dry after each plate; the accumulation of nitrate of silver at the bottom corners of the dark slide stains the plate, rots the wood, and denotes the careless operator.

ABOUT THE DEVELOPER.

BY DR. H. VOGEL.*

ABOUT two years ago it was rumored in Berlin that a young and very skilful photographer was in the habit of employing a developer which did not contain alcohol. The matter was much talked about as quite an exceptional circumstance, and was disbelieved by many. But it is, nevertheless, a known fact that with freshly prepared silver baths no alcohol is really necessary in the developer, although it becomes requisite as soon as the silver solution has been used for some time, and has taken up alcohol from the collodion plates dipped into it. The photographer in question, however, found that no alcohol was contained in his bath, for the simple reason that every night the liquid was emptied into a shallow porcelain dish, and the spirit allowed to evaporate. I asked him for the recipe of his developer, and it was as follows:—

Sulphate of iron,	-	-	5 parts
Glacial acetic acid,	-	-	3 "
Water,	-	-	100 "

At once I saw the explanation of the circumstance. Alcohol was not included in the formula, it is true, but glacial acetic acid was there, and photographers are not all aware that alcohol and glacial acetic acid exercise in some cases a similar action. If you use an old alcoholic silver bath, and develop a plate from it with a developer containing no alcohol, but one per cent. of glacial acetic acid, the result will be a streaky plate, because the alcoholic film repels a solution containing no spirit; but add two or four per cent. of alcohol to the developing solution, and the defect disappears. And exactly the same result is secured when more glacial acetic acid is added instead of alcohol. From this it follows, therefore, that the action of acetic acid is physically the same as that of alcohol, for it facilitates the flowing of the developer over a film prepared in an old silver bath.

To chemists the circumstances will appear by no means surprising, for alcohol and

glacial acetic acid behave in the same manner as regards their repellent action against aqueous fluids. As a rule, it is stated that the acid has the effect of retarding the development and clarifying the developing solution. The latter view is correct, but not the former. A developer may be prepared to which no acid whatever is added, but as much alcohol instead, and it will be found that the same acts quite as slowly as if it contained acid. I have, indeed, often employed a developer which had no acid at all in its composition; but only alcohol, and have obtained good results with it. But this developer I found became turbid on standing, a circumstance that may be avoided by the addition of one-tenth per cent. of sulphuric acid. With such a developer, containing no glacial acetic acid at all, I have worked for years, as also my pupils. Additions to the developer of such substances as sulphate of copper, sugar, &c., which have often been recommended, have no particular value. Sugar acts somewhat as a retarder, such as is desirable in the case of freshly prepared baths and a strong light; but the same effect may be just as readily produced by employing the developer in a more dilute condition.

I cannot forego this opportunity of telling a curious little episode from life concerning the developer. A photographer in Silesia, who is now dead, complained to me of development streaks, and sent me a plate which, truth to tell, was really an awful sight. He stated that he had tried everything he could think of to overcome the difficulty. He had altered the proportion of alcohol and acetic acid, had employed new silver baths, &c., but all without success; and in the developer, therefore, must be the fault, for the streaks only become visible upon its application to the plate. I examined the test plate more carefully, and discovered that the so-called development streaks were observable only in the background. On the outline between the figure and the background they ceased altogether; in the figure, on the floor, &c., there was not a trace of them. There was no doubt in my mind, therefore, that the streaks

* *Photographisches Notizen.*

in question were simply the folds and creases of the background itself. I recommended the photographer to change, not his developer, but his background, and the cure was at once at hand.

A number of photographers employ the developer in intensifying, while others, again, will have nothing to do with it in this capacity. "It produces stains and a meally precipitate," they say. I quite agree in this opinion, but would add that both stains and precipitate are to be avoided. Stains or streaks are formed because the silver solution added to the developer has the effect of diluting it, the percentage of alcohol becomes smaller, and the liquid does not flow evenly over the plate. For this reason I employ, for intensifying with iron, a solution of silver which contains as much glacial acetic acid as the developer contains alcohol, or alcohol and acid together. For instance:—

Water,	-	-	-	100 parts
Citric acid,	-	-	-	1½ to 2 "
Glacial acetic acid,	-	-	-	2 to 5 "
Nitrate of silver,	-	-	-	2 "

With such an intensifying solution as this, there need be no fear of repulsion by the film. Meally precipitates are avoided by washing off the intensifier as soon as it becomes turbid. Braun, of Dornach, intensifies with iron. As a matter of course, the iron intensifier is only serviceable where moderate vigor is desired, as in the case of portrait or landscape photography. In this case intensify before washing the plate. If, however, it is a question of a very dense film, as in the case of reproducing drawings and engravings, a pyrogallic or other intensifier must be employed.

The Possibilities of Future Discovery.

A STRIKING illustration of the popular lack of scientific reasoning is to be found in an editorial which recently appeared in the New York *Herald* as follows:

"The wildest imagination is unable to predict the discoveries of the future. For all we know, families in the next century may pump

fuel from the river and illuminate their houses with ice and electricity. Iron vessels, properly magnetized, may sail through the air like balloons, and a trip to the Rocky Mountains may be made in a hour. Perhaps within fifty years American grain will be shot into Liverpool and Calcutta through iron pipes laid under the sea. By means of condensed air and cold vapor engines, excursion parties may travel along the floor of the ocean, sailing past ancient wrecks and mountains of coral. On land the intelligent farmer may turn the soil of a thousand acres in a day, while his son cuts wood with a platinum wire and shells corn by electricity. The matter now contained in a New York daily may be produced ten thousand times a minute, on little scraps of pasteboard, by improved photography, and boys may sell the news of the world printed on visiting cards, which their customers will read through artificial eyes. Five hundred years hence a musician may play a piano in New York connected with instruments in San Francisco, Chicago, Cincinnati, New Orleans and other cities, which will be listened to by half a million of people. A speech delivered in New York will be heard instantly in the halls of other cities; and when fashionable audiences in San Francisco go to hear some renowned singer, she will be performing in New York or Philadelphia.

In the year 1900 a man may put on his inflated overcoat, with a pair of light steering wings fastened to his arms, and go to Newark and back in an hour. All the great battles will be fought in the air. Patent thunderbolts will be used instead of cannon. A boy in Hoboken will go to Canada in the family air carriage to see his sweetheart, and the next day his father will chasten him with a magnetic rebuker because he did not return before midnight. The time is coming when the *Herald* will send a reporter to see a man reduce one of the Rocky Mountains to powder in half day. Skillful miners will extract gold from quartz as easily as cider is squeezed from apples. A compound telescope will be invented on entirely new principles, so that one may see the planets as distinctly as we now see Staten Island. Microscopes will be made so

powerful that a particle of dust on a gnat's back will appear larger than Pike's Peak.—And marvelous progress will be made in psychological and mental sciences. Two men will set in baths filled with chemical liquids. One of them may be in Denver and the other in Montreal. A pipe filled with the same liquid will connect the two vessels, and the fluid will be so sensitive that each may know the other's thoughts. In these coming days, our present mode of telegraphing will be classed with the wooden ploughs of Egypt, and people will look back to steamships and locomotives as we look back to sailboats and stage coaches."

CURIOUS CUSTOMERS.—No. 10.

"A CELEBRITY" PICTURE.

MR. NITRATE says he can "just make as good pictures as the best man in the States;" and what he states is most likely true, for who, so likely as he, to know what he himself can do? He don't beat several we know; but that has little or nothing to do with it. He *might* if he tried. As a beginning, he determined to invite some beautiful damsel, of the "Black Crook" persuasion, to sit to him in as little costume as need be. "You know," he says, sagely, "its impossible to make good pictures without good subjects."

But alas! Mr. Nitrate's pictures fail to satisfy the fastidious taste of the capricious beauty; or Mr. Nitrate is not sufficiently handsome, or "swell" enough to tempt her; or, it may be, that she is out of temper—something is wrong, for she orders him out of her house.

Our photographer is at least energetic, and goes through a great many of these interviews, and meets many rebuffs. He has to come down a great deal in his notions of just what style of beauty he would select, and at last strikes a man, who is willing to drink whiskey at his expense, and puff away an unlimited number of cigars.

"All right, my boy, I'll come up and sit to you, and you may expect to sell a good many of my pictures, if you will only take

me as 'Bully Boy of Brooklyn.' You hav'nt seen me in that part, eh? Then you should. I'll come, I'll come. You're in for a good thing—I make up capitally."

The B. B. of B. does come just as Mr. Nitrate is engaged with two or three ladies.

"Here I am, you see, Nitrate! Don't keep me waiting, for we have a call at the theatre for two o'clock, that will give you an hour and a half," shouts the B. B. of B. as he slaps Mr. Nitrate on the back. That gentlemen would feel annoyed, but that he feels his dream of greatness is about to be realized. The ladies, evidently, are rather disgusted at the tone of the "pro."

Mr. N. perspires dreadfully to get through with his customers, and really does offend one vacillating elderly party; (unfortunate, because she had a large family and connection who hung on her judgment in all things.) This lady went off in a terrible state of fury, because of Mr. Nitrate's off-hand manner.

"Now, then, old fellow, are you ready for me? Tell me how you like this sort of thing?" roars the Bully Boy, who can never talk except at about half-a-gale pitch. "How do I look, now?" and he reveals himself to Mr. N.'s delighted gaze, as the B. B. in all his glory of leery look, unshaven chin, flashy dress, &c., &c.

"Beautiful!" murmurs Mr. N. "Now I'll get a plate ready!"

"It's the make-up, ain't it?"

The plate is already—now for the pose. Nitrate feels himself an artist, indeed, but the B. B. has his notions too, and things begin to look just a trifle hilly, but Nitrate is good natured and backs down.

"No, then, look at this object—don't squint so," says Mr. Nitrate, anxiously.

"How's the expression?" asks the B. B.

"Lovely! Now, already."

"Why, confound it, I've forgotten the smut of black on my nose, that brings down the house in the fifth act! Oh, I must have that in."

"Make haste, there's a good fellow—will you?" says Mr. N., thinking of the state of his plate.

Away bolts the B. B. to make up the smut that is so popular with his admirers.

In the meantime, Mr. N. is wanted in the reception-room. "Hang it!"

He gets back to his sitter, who is roaring out his celebrated patter song.

"You couldn't take me with my eighteen instruments, on which I play during the piece, could you?" asks the B. B.

"No, hardly."

"It would take immensely if you could," the professional gentleman thinks.

The first plate is not a success; covered with pinholes, and decorated with all the varieties of markings and streakings.

"Now, mind, we'll try again; I'll strike that attitude where I protect innocence against a bloated English lord. Somehow, that does not turn out quite right—the expression is rather comic!"

Mr. Nitrate thinks his bath appears to be going back on him, but he struggles on. The gentleman in the profession, too, is getting thirsty, and proposes an adjournment to the corner. This being negatived, Mr. N., wishing to get negatives, the B. B. gets fractious, and discovers that it is time for him to be off.

"I'll come in to-morrow, my boy; come in every day, and you can take me in all my characters;" and clears himself up, and goes off.

Mr. Nitrate begins to think that the celebrity business is too worrying to pay.

WM. HEIGHWAY.

On the Comparison of Photographic Processes with Reference to their Relative Rapidity.

BY D. WINSTANLEY.

To compare the relative rapidity of photographic processes—to determine, for instance, which of any two is the more rapid, and by how much its rapidity exceeds that of the other—seems to be a matter of small difficulty. I have recently had occasion to demonstrate this difference in the instance of two processes in which one has a very ma-

terial advantage over the other, and have found with surprise that considerable misapprehension on the matter prevails, both as to the kind of experiment suited to the determination of the point in question, and even as to the value of a crucial test. This misapprehension is, no doubt, the cause of such a total variance in the statements of various experimentalists who have from time to time made comparison of certain photographic processes. I take the liberty, therefore, of making a few remarks on a matter which every photographer should understand.

It is well known to those accustomed to operating in the tropics, that the exposure required in landscape work under a cloudless sky and in a dry atmosphere, is greater than under the cloudy and moist atmosphere of England. It is also well known that this increased exposure results from the very dark shadows cast by objects under a sky which has no clouds to illumine the detail in the shade. Over and over again it has been laid down as an axiom in exposure that time enough must be given to bring out the detail of the shades. "Look to your shadows, and let your lights take care of themselves," is an expression which may be regarded as a photographic proverb.

The way to compare scientifically the relative rapidity of processes in photography is to expose to an object of uniform and invariable illumination for times sufficient to get an uniform and determinable effect. The relative rapidity is then directly as the relative exposure. Practically, we find visibility to be the only definite effect we can look for in a negative, intensity being influenced by so many causes that it can count for nothing. We may, then, in testing two processes with a view to determine which is the more sensitive, and by how much, adopt one of these two methods:—We may use a white screen or sheet of paper illuminated uniformly and in a constant light, expose in the camera in each case for a length of time short enough to give on development a faint image only, and coming out with reluctance; or we may use a number of objects, varying but little in

illumination and light-reflecting power, all in the shade, and expose in each instance for the minimum of time requisite to bring out the details of this shadow picture. In either case, the rapidity of the processes compared varies directly as the times required to produce the constant and comparable result. A head lighted as for ordinary portraiture, though sufficing well enough to distinguish qualitatively which of two processes is the more sensitive, is wholly misleading when employed for obtaining quantitative results. The amount of dark shadow is so small that very little difference is perceived in negatives taken by the same process with exposures varying considerably, and the more especially if one be over-exposed. Take a sheet of cardboard, divide it into one hundred squares, and paint one almost black, or quite so, and write on it with a lead pencil. Suppose, now, an exposure of one minute were required to show the detail in this black square. Take a negative so exposed, and compare with one produced in ten seconds only. The only obvious difference is that in one square the difference in exposure does not force itself upon you. Blacken all the squares and write on each with pencil, try the experiment again, and the difference is palpable enough—*something* on the one plate, *nothing* on the other. Compare the times required to produce something in each case, and you have the result sought.

I have reason to believe that the relative rapidity of processes will shortly force itself upon the notice of many of the readers of these pages. When it does so, if they will secure an aggregation of dark objects in the shade, and compare the minimum times required to bring their details out, they may depend upon it that the true quantitative rapidity has been found. Try on objects with but little shade and brilliant lights, and the results are seriously misleading.

Albumenized Paper Enlargements by Development.

At a recent meeting of the Vienna Photographic Society Herr Carl Matzner gave some

particulars by which he effects enlargements by development on albumenized paper. We have pleasure in giving an account of its formula.

He prepares first a bath of one part of silver to eight parts of water, and after the crystals have been fully dissolved adds a tenth part of a dilute solution of citric acid, stirring or shaking the mixture the while. Good and, when possible, strong albumenized paper is then chosen and plunged into the bath, so that the back equally with the front may be coated by the solution. After three minutes' immersion the sheet is hung up in a room totally dark, and allowed to dry slowly. This paper must be kept from the daylight much more carefully than ordinary silvered paper. It may be prepared one or two days before using; for, on account of the acid, it will remain eight days or more quite white.

We now come to the impression:—This may be taken either in the printing-frame or in the solar camera through an enlargement. A fourth or fifth of an ordinary exposure is given, and when there is just a faint image visible the sheet is removed to the dark room there to be further dealt with.

The development may be either proceeded with at once or left till another day. Should the sheet be covered, without preparation, with acidulated pyrogallie acid the whites would come out first a yellow and then a brownish hue; and, to guard against this evil, Herr Matzner has recourse to the following plan:—The sheet is laid first in a clean tray, which is a little larger than the sheet, care being taken that the room is well darkened, and then distilled water is poured over it, so that both sides of the sheet are covered with it, but not much more. When this is accomplished—and it will be an advantage if a few drops of silver solution be added to the water in the dish—the tray is raised at one end so that the water may run to the lower corner and, when it is a whole sheet that is operated upon, one and a-half ounce of glacial acetic acid is then poured over its surface. This, mixed with the water, is now agitated backwards and forwards over and under the sheet for about five minutes until the paper becomes

quite soaked. After this preliminary the actual development is proceeded with.

Through the action of the acid the albumenized paper has become transparent, and the greatest difficulty of all—the difficulty of the penetrating of the pyrogallic acid through paper—is now much lightened. Concentrated pyrogallic acid, acidified with glacial acetic acid, is now poured over the sheet, and the tray moved slowly as before. The image will come up slowly, and in about half-an-hour's time will be quite strongly out with good, strong shadows, unless the temperature be very low. Should the image not thus attain the desired intensity it may be strengthened by using a few drops of the silver solution above given, and proceeding in the ordinary way. When it is sufficiently developed it must be thoroughly washed to clear it from the free chloride and the acid, and, with a final rinse in distilled water, may then be subjected to toning.

Almost any toning bath will do, provided it be but half the ordinary strength. The water is poured all away from the print in the tray, and rapidly replaced by weak toning bath. So soon as there is any sign of a change of color the sheet should be taken out, washed and placed in the hypo. bath for fixing. This fixing must be carefully done, seeing the manner in which the sheet has been silvered; and when accomplished the subsequent washing should demand equal care, although there is nothing otherwise special in the treatment of the print subsequent to toning.

In order to heighten the beauty of the tones a small quantity of a gold solution is added to the fixing bath the day before it is used, the soda being stirred rapidly all the time — The strength of the bath is one part of hyposulphite to twelve parts of water.

The process is a rather expensive one, except for these important kinds of picture, and the fixing bath demands, to begin with, at least a considerable quantity of gold; but it may be used repeatedly, Herr Matzner thinks, without evil effects.

In warm weather stand your collodion vial in cold water, or wrap about it a wet cloth.

A Dry Atmosphere a Cause of Imperfect Prints.

DURING very dry weather many photographic printers experience difficulty in obtaining prints free from an objectionable mealy tone. Without, however, changing in the least degree their method of working, this meanness disappears when the intense dryness of the atmosphere is replaced by a medium amount of humidity.

It is not sufficiently well known that printing paper when perfectly desiccated does not answer so well as when not thoroughly dried. Every photographic experimentalist is aware that moist chloride of silver is far more sensitive than dry chloride, and that this sensitiveness is greatly increased by the presence of a slight excess of nitrate of silver—a fact very clearly demonstrated by Herschell and his *compères* at a period when photography was very youthful. Indeed one of the very first applications of glass as a medium upon which to receive a photographic image was by placing a plate at the bottom of a vessel of water containing chloride of silver in suspension, and allowing the atoms to settle slowly down, so as to form an uniform layer upon the surface, which, however, was not sensitive until subjected to the action of nitrate of silver. Certain photographic surfaces, such as bichromated films, are more sensitive when dry than when wet; and the same may be said of certain conditions of surface upon which bromide of silver forms the sensitive material.

Between the chloride of silver upon albumenized paper when used absolutely dry, and the same when not quite freed from moisture there is, as we have said, a great difference—the former yielding a print slow to tone, and which gives, after all, a mealy image, while the latter is free from this imperfection.

The following experiment, which was conducted by a professional friend of much experience, will prove of great value to those who meet with any toning difficulties, more especially in dry weather; and it will prove an answer to several correspondents who

have recently been troubled with mealiness and want of brilliancy in their prints. The gentleman in question was, a few summers ago, nearly driven to distraction in consequence of this annoyance. He had recourse to different samples of paper, new baths, and various methods of treatment in order to exercise the maleficent power by which he was subjected to so much trouble; but all without avail. Observing the marked similarity of the behavior of his prints with some printed upon paper preserved for a short time in a Marion preservative case, he was led to reflect on the probable cause.

Sensitive paper preserved in a Marion case becomes thoroughly dried, owing to the presence of a powerful desiccating agent, such as chloride of calcium, and in many instances it fails to yield a satisfactory print unless a moderate amount of time shall have been allowed to elapse between its removal from the case and its exposure under the negative. Bearing in mind that the atmosphere had been unusually dry for some time previous to his encountering these printing difficulties, it occurred to him that not only would the paper be abnormally dry, but the printing-frames, pads, and all their surroundings, would be in a similar condition. To test this point the following experiment was tried:—A coal cellar in the lower part of the house was subjected to a thorough syringing with cold water, and in this damp chamber a selected and marked dozen of printing-frames, with their pads, were placed for a night. In the morning a certain marked portion of the ordinary sensitized albumen paper was also placed in the cellar for about half-an-hour, or until it had lost that extremely horny surface by which it was characterized when placed in the damp room. The materials thus prepared, were now handed over to the printer, who was not slow in discovering that a marked improvement was the result. The prints obtained under the pre-existing circumstances were slow to tone, and as objectionable as before; while the other paper which had, with the frames and pads, been subjected to the influence of the moist atmos-

phere printed brilliantly and rapidly, and acquired a fine tone in the gold bath. All the samples of paper previously laid aside as bad were again tried under these changed circumstances, and found to be very excellent.

This experiment requires no comment. Those who have recently written to us complaining of the so-called inferior quality of albumenized paper now being sold, should repeat this simple experiment, and, as a consequence, they will probably find that the real cause of their failure lies in the long-continued dryness of the atmosphere.—*British Journal.*

COLOR OF NEGATIVES.

THIS question seems to be exercising the minds of operators just now—and, without doubt, it is a matter of great importance to obtain a film possessing good actinic qualities. When then like Anderson and your Mr. Waller, get at the subject, with a view to clearing it up, there is every chance that they will come to some practical solution; and I would hardly dare to intrude my experience in the councils of such authorities, if I had not lately come across a great many negatives, splendid in regard of color, though indifferent in any other respect. I at once set to work to endeavor to discover the means by which this was obtained. There are many difficulties in the way of photographers in England, discovering anything appertaining to the method of working in another gallery, and to approach anything like certainty, is rather hilly work—it has to be got at gradually. One day, fortune worked with me in the shape of an old photographic friend of mine, who desired to take a negative in my gallery. I could not get the color I desired, but I found out of my bath, and with my collodion, he could. He had an old penchant for cyanide as a fixer, and this, I thought, must be the secret. I tried it, and found it so. Cyanide, in the soda solution, had the same effect for a time. But as Anderson, in his experiments found, as it got weaker, the color of the fixed negative got bluer.

I feel, no doubt, in my mind, that this coveted hue is to be obtained through the action of cyanide of potassium.

I am glad Messrs. Anderson and Waller do not intend to give up their experiments, but I still think that they will have to come back to cyanide as the cause of olive-colored films.

WILLIAM HEIGHWAY.

Dernier Effects—New Means of Improving Negatives.

ONE among several methods by which an effect of extreme porcelain-like softness can be obtained in prints is that said by some to be adopted by Dernier, which consists in coating both sides of the plate with collodion and developing an image on each film. As serious difficulties intervene in the way of securing in this way a *back* image of even moderately-good quality, it has been suggested to take a second negative—a *facsimile* of the first one—and place it in the printing-frame along with the other, upon which it is superimposed, and from which it is separated by the thickness of the glass. If each of the negatives be so thin as to make both when used conjointly only to equal in intensity a good printing negative, it follows that a print will be obtained having both sharpness and a certain softened effect, this being due to the fact of one of the negatives being separated from the paper by the thickness of the glass.

We have already shown how a similar effect to that obtained by Dernier can be secured by first printing, with an ordinary negative, to about one-half the extent required or, preferably, a little more so, and then removing the negative from its close contact with the sensitive paper and interposing a tolerably thick film of either oiled paper, gelatine, or other transparent substance.

Another method preferable—certainly as respects simplicity—to either of the foregoing was described by Mr. B. J. Edwards, at the last meeting of the South London Photographic Society. The negative receives

on its back a coating of sensitized tacky gelatine or gum, prepared as for the dust process, and for the preparation of which we have published several formula during the past month: When this coating has been dried the face of the negatives is directed towards the light so as to print an impression through the glass upon the sensitive film on the back. This film thus becomes "tacky" inversely to the action of the light; hence the very deepest shadows are thoroughly hardened, while the most opaque portions are tacky, the intermediate parts being also so in a medium degree. When plumbago is brushed over the surface the result is that a second negative is formed upon the back of the primary one, the latter being, of course, much sharper than the former.

The method in question offers certain advantages, inasmuch as pictorial effects may be obtained by brushing the plumbago—and thus developing the image—in certain parts only, to the exclusion of others. But it is evident that the best effects can only be obtained on a very thin negative, or one taken expressly with a view to its being thus treated; for a negative of the ordinary kind, in which the high lights have already obtained their full quota of density, would, by the treatment now recommended, have that density so much increased as to render the negative quite impossible to print from.

There is another mode of improving negatives, and one which offers advantages of a far more important kind than the method just described—that which is based on the same principle, and has stood the test of practice during three years in the skilful hands of Mr. Whitefield. On the *face* of a thin negative—one purposely left thin in development—is applied the sensitive mixture, which, after being dried, is exposed to the light under the negative, so to speak, this being effected by merely holding the back of the negative to the light for a minute or two. The powdered plumbago is now brushed over those portions only which it is desired shall be intensified. The power of local intensification thus conferred is one which by an

artist of skill and taste, may be utilized for the most important purposes. In portraiture the face may be produced with the utmost degree of brilliancy, while all the rest of the figure may be kept in any desired degree of subservience; this, in landscape work, will be simply invaluable. How seldom, for example, it is that trees receive the right amount of exposure which enables them to print properly; and more especially is this the case when there is a light-colored house in the scene on which the photographer bestows his main efforts. By the adoption of Mr. Whitefield's method this inequality of illumination may be entirely avoided; and not only so, but the tables may even be turned entirely.

It is worthy of notice that the sensitive coating may be applied to the negative not merely after it is dried and varnished, but also immediately after being fixed and washed, and while it is still wet.

After the application of the plumbago the negative is exposed to the light to remove the last traces of stickiness; it is then washed with acid, as directed, and varnished. *British Journal.*

WASHING PRINTS.

WE have been, during the last few months, several times personally consulted by photographers in large practice as to the probable cause of early fading in their prints, and have almost invariably found, in course of conversation as to the modes of working adopted, that they depended for washing chiefly on long soaking. "It cannot be imperfect washing," is commonly remarked, "for the prints remain in running water all night." Waiving, for the present, consideration of all other causes of fading, we think it important again to call attention to the fact that merely washing in running water is by no means an efficient method of removing hyposulphite, and that long soaking is often, in itself, absolutely injurious, initiating a decomposition in the sizing of the paper which must finally issue in the destruction of the print. As regards the time of soaking, four hours should always

be ample. It is rather on the mode of applying the water, than in the time of soaking, that efficient washing depends. Frequent changes of water, and perfect draining between each, will more effectually remove the hyposulphite than much soaking. The use, if possible, of the sponge or squeegee between changes of water, is most desirable. Placing the prints in a pile, and subjecting them to severe pressure once or twice between changes of water, is one of the most efficient plans of all. The use of a *douche* playing upon the prints—a plan adopted by Herr Albert, of Munich—is very efficient. Referring to this plan, which has been adopted by Mr. Kurtz, his mode of applying it was recently described at the German Photographic Association in New York. The plan is as follows:

"After fixing, the prints are put in a flat trough, the bottom of which consists of grooved plate-glass, and is in an inclined position to allow the water to run off; above this trough are several douches, connected by hose with a water-pipe running along the ceiling. To prevent the prints from being carried away from under the douches by the force of the water, they are put in half cylinders of glass, about twenty inches in diameter for large prints, and glass rods for smaller ones. When placed on top of these they will not move. After being washed on both sides for about five minutes, the silver test for hypo., as lately published, fails to show any trace of it. Generally, after thus washed, the prints are thrown into a tank with running water till the whole lot is got through with."

It will be seen that in all these cases the principle of using either friction or pressure to drive off the clinging hyposulphite is adopted as of vital importance.

ON ENGINE PHOTOGRAPHY.

TO THE EDITORS.

Gentlemen,—This is, as many of your readers are aware, a very important and greatly-increasing branch of many a photographer's business at present; and having had some experience in it, I purpose giving a state-

ment of the mode of procedure adopted by myself with great success, and which I can recommend to any of my photographic brethren who may feel disposed to follow it out for their own satisfaction, and also for the satisfaction of the engineer engaging their services.

I made up a new bath of the strength of thirty grains to the ounce, and, after iodizing and acidifying, tried a small plate in the studio to make sure of its being in good working order, and that being so, proceeded to mix up the other necessary chemicals.

Having the photographic van ready for the reception of the working plant, I ran through the list of things requisite, beginning with the plates, so as to be sure of not going away and, on arrival at the scene of operations, finding myself accompanied by the bath *minus* the dipper, a camera and lens *minus* the stand, and so on. Having all ready, I packed everything securely and drove off some five or six miles to the works of the engineers, and on arrival began to rig up for working 12x10 plates.

The locomotive was drawn out on a line of rail in the company's yard. I then got a man to distribute a couple of buckets of white lime underneath and round about the engine, thus reflecting a good light up, and showing every bolt and screw in the under gear with distinctness, and by that means the resulting negative was much finer than otherwise could have been obtained.

Having pitched the camera at the best point of sight, and levelled it with a spirit level, I polished and dusted a plate, and, using collodion which had been iodized about two months, sensitized the plate. Seeing that the holder was thoroughly clean and slide working freely I inserted the plate, backing it with a piece of red blotting-paper moistened with water and pressed into *close contact*, also laying a strip of blotting-paper in the groove at the bottom of the slide to soak up the silver dripping from the plate, and for the prevention of "wood stains." Returning to the camera I focussed, stopped down very small, thus obtaining great depth

and minute sharpness. I developed with a solution made up as follows:—

Sat. sol. am. sul. of iron, -	3½ ounces.
Glacial acetic acid, - -	6 drachms.
Gelatine solution, - -	2 "
Water (pure soft), - -	30 ounces.

Having brought out all details, and well washed, I intensified with the following solution:—

Pyrogallie acid, - -	30 grains,
Citric acid, - - -	5 "
Water (pure soft), - -	18 ounces,

adding a ten-grain solution of silver, and fixing with a saturated solution of hyposulphite of soda as being quite as effective and far less dangerous than cyanide in working at a high temperature, again washing thoroughly for about five minutes. I then flooded with a weak solution of gum arabic to prevent the negatives from splitting in the drying or leaving the plates in any way whatever, and placed them standing on blotting-paper to dry free from dust. Having completed the day's work after the manner described I carefully put the negatives (sliding them in on their backs) into a clean and smoothly-grooved plate-box, previously laying a piece of blotting-paper at the bottom for the moisture to drain into, and varnished them on my reaching home, placing them in a rack ready for being printed on the morrow. And now as to their printing.

The sensitizing bath was sixty grains to the ounce, slightly acid, using a Rive's paper possessing a good body of albumen and floating three minutes, drying before a gas fire slowly (the gas fire is best, as it gives no dust), and afterwards straightening in a portfolio between yellow blotting-paper—thus keeping it flat, and ready for use at any moment. Taking the negatives one by one I blocked out everything in the background with Bates' black varnish, and, tracing carefully round the outline of the engine with red color laid on with a small brush, allowing time to dry, and warming the pads of the printing-frames, I printed each picture to the desired depth; afterwards flattening, by exposure to sunlight for a few seconds, the

white ground (made so by the distributed white lime), thus avoiding too much contrast, and being fully repaid for extra trouble in the prints being so much nicer.

I toned with the acetate bath, obtaining a nice warm sepia tone, and, after washing well, made up a solution of hypo., four ounces to the pint, fixing for ten minutes; then came thorough washing in the three waters, allowing the prints to remain in running water for some five or six hours. I then hung them up to dry, cutting when dry, and mounting on buff-colored mounts, having a red line for the enclosure of the picture, using for that purpose freshly-prepared starch. I placed a piece of common note-paper over the face of the prints, and rubbed them down by means of a putty knife, rolling and spotting-out all little defects, with which operation the work was finished, being eminently satisfactory to all concerned.

A word or two about printing copies of engineers' plans. Instead of printing them on albumenized paper try the effect of printing them on salted paper, floating it on a sixty-grain bath for eight minutes. You will obtain a *fac simile* of the original drawing, the surface being slightly porous and "deal," like drawing-paper, instead of glazed, which will be found to be more acceptable to the engineers, who like exact copies of their work, faithful in all points.

If anything I have written may help any follower of our beautiful art in the production of good work in this direction, my purpose will be fully answered.—I am, yours, &c.,

HARRY HALLIER.

Liverpool, June 8, 1874.

British Journal.

OUR ILLUSTRATION.

THE picture which we present with this number is from the studio of Mr. R. E. Atkinson, Palmyra, N. Y., and is on a par with the high class of illustrations which we have been enabled to present throughout this year. Everyone will appreciate the careful and artistic workmanship which Mr. Atkinson's photographs offers to their criticism—the natural and unstudied pose; the judicious

and soft blending of light and shade, and the first-class chemical effects, as evinced in the beautiful drapery.

It is a pleasure to publish such fine work, and we have to thank Mr. Atkinson for his generous offer and loan of the negatives, from which these illustrations were printed.

The prints of these superior negatives were made in the photographic department of the NATIONAL PHOTOGRAPHIC EMPORIUM, upon Morgan's H. extra brilliant paper, and with the formula so often before published. We add an able article from the pen of Mr. Atkinson, describing his mode of working—he, as well as all other good operators, finding that the formula is nothing, it is the exercise of taste, judgment and skill that produces good work.

PALMYRA, N. Y., Aug. 25, 1874.

Mr. Richard Walzl,

My Dear Sir:

Enclosed please find sketch of my skylight. The light has a direct north exposure; is at an angle of about 45 degrees; curtained inside with light white cloth suspended on wire or rings, so as to be adjusted from right to left. The top light is screened the same, with the exception that the cloth is covered with tissue paper. My operating room is 18x22 feet—I use no pet formula. Bath 40 grs., slightly acid. Anthony's new negative collodion, I use no other. Developer from 30 grs. to twenty and even less, according to light and drapery. I use no dodges in lighting drapery. I get the light first as I want it, then go ahead, and expose rarely a sitting more than once. I have the satisfaction of making these negatives with my own hands. Positions, lighting, manipulation, retouching, &c., were done after my own idea of working. Still I am under many obligations for what I know of photography to Mr. J. H. Kent; Ed. McNulty, printer, and Sam. Wardlow, Mr. K's manipulator, and Sherman Gregg, Mr. Barhydt's operator; all of which I have found as willing to give as the art student is to receive.

The instrument is an old Harrison 4-4 and an old shell of a box, time 20 seconds. You

will see by the negatives, the very fine re-touching surface. I use no pumice stone, nothing but my varnish and finger. If flowed on a cold plate it imparts a beautiful ground glass surface; if applied warm, it dries perfectly clean and bright. I never run any risk in grinding a negative, it takes the pencil perfectly, and you can lay on as much lead as you like. I will add in making negatives of white drapery I use plenty of No. 8 acetic acid, and give good full time, holding the plate during the development perfectly still. I do not pretend to be an expert in photography. I am indebted to your live journal

for a great many good things, which I am glad to know is appreciated by the wide-awake artist, and photographer. An artist must study work and observe to keep up to the rapid strides of the art. I have a great love for the beautiful art, and hope to work long enough at the "biz" to become a "vet." I am not satisfied with my work, and do not think it is anything extraordinary. I did not make the negatives expressly for you, these are my everyday-work. Hoping they are up to your expectation, I am truly yours,

RICHARD E. ATKINSON.

Miscellaneous.

THE PREPARATION OF ALBUMENIZED PAPER.—In the *Photographische Correspondenz*, M. J. Homolatsch describes his plan of albumenizing paper, which he has practised for many years with success; he simply floats his paper on albumen, and does not resort to the plan of rolling, which, he says, gives a borrowed gloss that disappears when the paper is washed and toned and fixed. Thirty ounces of fresh white of egg are, according to the amount of water in the eggs, mixed with ten to twelve ounces of water, and forty grains of chloride of ammonium and thirty drops of glacial acetic acid are added; according as the tint of the albumen is light or dark, so a few drops of aniline red are added, and the whole beaten to snow. In a few hours the froth becomes liquid again, and the albumen is put into a bottle to ferment, when the fibrine becomes deposited. The aniline red is added merely for the purpose of neutralizing the green tint of the albumen; care must be exercised not to add too much coloring matter, as the prints will then appear rough and mealy.

Before the albumenizing is begun the liquid is filtered through thick linen and filter paper, and is then allowed to remain for an hour, for the air bubbles to become separated and rise to the top, when they are skimmed off with a bit of blotting-paper.

The paper is placed, face downwards, upon the albumen, and allowed to float until it is perfectly flat. Two corners, which have been bent up, are seized, and the sheet care-

fully raised and placed to dry. It is now ready, and the drying is finished under a press. It is quite free from smell, and is best used after a few days, when the film has become hard. Cutting and rolling are unnecessary, and are only undertaken when the paper is to be disposed of commercially. Any gloss the paper receives in this way disappearing after it has once been put into water. When the liquid becomes thickened after use, it is diluted with an ounce of distilled water containing a grain of chloride of ammonium in solution.

OATMEAL AND SUNSTROKE.—Sunstroke may be prevented by mixing oatmeal with the drinking-water of persons employed in outdoor labor or in heated exposures, and cornmeal with the drinking-water of horses. In New York city these simple preventatives are used on all the public works and by most, if not all, of the street railroad companies. The meal-water soon becomes very palatable. Both man and beast will go through a hot day's work with more strength and comfort than by the use of simple cold water, the imprudent use of which so often causes sickness and death. Contractors would find it a paying investment to furnish their workmen with oatmeal-water, and the same may be said of street railroad companies in regard to their poor overworked horses. Oatmeal water will add very much to their capacity of endurance, and save many a horse from dropping off prematurely.

A thing of beauty is a joy forever.

FOREIGN NOTES..



MR. ROBERT FAULKNER, of England, has obtained a patent for fixing dry colors, such as crayons, chalk, &c. He mixes dextrine with them and afterwards moistens the back of the canvass or stretcher.

THE *Photo. News* appreciates American work, and speaks of the general quality of it as above the average of English in regard to artistic points as well as the manipulative portions, in which we have long had the supremacy.

THEY are greatly exercised on the other side just now in regard to photographic poisons, and we publish an interesting treatise on the subject, which all should read.

THE latest advance in dry plates is Mr. Stillman's preparation, which needs no bath, washing or preservative, it is simply a sensitive collodion, which you pour upon the plate and it is ready for use. The plates are said to keep for any length of time before or after exposure and are developed as usual.

As a cure for blisters in albumen paper warm hypo. and warm water for washing is recommended. It is the change of temperature and unequal contraction that is the cause of blisters.

MR. JAS. BECKETT has patented in England a process for toning, fixing and washing, by which only the face of the print comes in

contact with the solutions. The method is circular tanks, with a core to which the prints are attached.

EXPERIMENTS are being made with a substance termed aldehyde as a developing agent.

PHOTOGRAPHIC IRRADIATION.—In the course of some recent correspondence Mr. Stillman, writing in *Nature*, referred to the notion that photographic irradiation was due to reflection from the back of the plate, and mentioned backing and coloring the film as remedies. He added:—"But the most complete (where the dry emulsion process is available) is to allow the collodion to be acted on by a large excess of nitrate of silver for a considerable time, and then to convert this into bromide of silver by addition of ammonium bromide. The result is that the film has a dull opaque character, like unglazed porcelain, and not only stops the light more completely than an ordinary collodion film, but remedies another cause of irradiation—the molecular reflection in the film itself." Lord Lindsay and Mr. A. Cowper Raynard, writing in response, point out that reflection from the back of the plate is not the sole cause of this defect. They remark:—"When an over-exposed photograph is taken upon an opaque plate a marked fringe of irradiation

still remains, and experiments were instituted by us which appeared to show that this is not to be accounted for by any circulation taking place within the thickness of the collodion, or by the chromatic dispersion of the lenses; but when the oblique pencils from the edges of the lenses were stopped out the irradiation fringe was found to be greatly decreased. We were led to conclude that irradiation is to be accounted for by the fact that each luminous point in the object is not accurately represented by a luminous point in the image, but rather by a luminous patch of sensible area, the central and more intense portion of which prints itself first in the photograph, giving comparatively sharp picture prints when the exposure is short; but as the picture is still further exposed, the outer portions of the luminous patches imprint themselves, and by their over-lapping cause the blurred appearance to which has been given the name of irradiation."

M. E. THIERREE, of Bresles, (Oise) strongly recommends the addition of alcohol to the printing-bath, as aiding to coagulate the albumen and give vigorous proofs, whilst it keeps the bath bright.

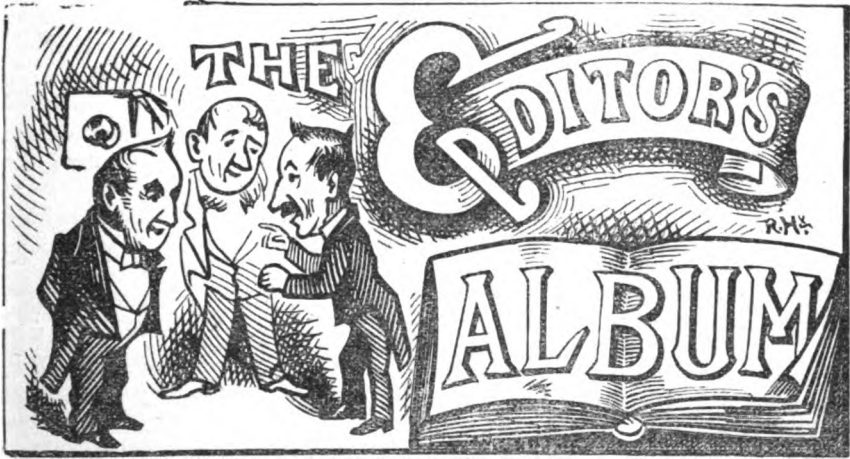
M. PIQUEE, photographer, of Froyes, forwarded to the Society a sample of an albumenized paper print colored with pulverized dry colors. His mode of operating, by which he says he obtains with great speed effects that are only slowly reached with the brush and wet colors in the ordinary way, is simply this:—The surface of the albumenized paper is abraded by rubbing it with powdered cuttle-fish bone under the finger. The parts to be retouched becoming thus "matt" the dry colors can be applied with a stump of elder pith or very soft cork. Where vigorous effects are wanted, as in accessories, the surface may be abraded with a knife. China ink is not to be used at all in this process. The proof done in a quarter of an hour showed what might be effected in this way.

AN anonymous writer in the *Moniteur* puts his professional brethren of the camera on their guard against persons who call at a studio to have their portraits taken, and order a specimen print to be sent to their hotel,

after which no more is heard of them by the artist. He adds that tourists may in this way fill their album with portraits of their honorable selves, and have lots to give away to their friends besides, without putting their hand in their pocket. He suggests as a remedy that all specimen prints should be defaced by a stamp bearing the name of the photographer.

INTENSIFYING NEGATIVES.—Several methods of rendering negatives more vigorous or dense have been suggested, not involving the employment of intensifying solutions, which some people look upon with great distrust. Mr. Blanchard was one of the first to suggest securing density by allowing the light to act upon the unfixed image, and we believe that for some years past he has employed this method in the production of the beautiful portraits for which he has become so famous. Another plan is to superpose two thin negatives, and thus obtain a vigorous, and, at the same time, delicate, result. A third process, recently suggested, is to coat the back of the fixed and varnished negative with a bichromated gelatine mixture, and allow the light to penetrate through the image to the sensitive film below, and, after a time, to wash and fix this secondary image, which aids materially in printing. If the negative in the first place happened to be a weak one, the non-actinic yellow tint, as also the bichromate image itself, imparting considerable vigor to the cliché. Another plan is now brought forward by M. Klinger, of Braunau, in Germany, which is similar to Mr. Blanchard's, and consists in exposing the unfixed image to light under a pale yellow glass, after having carefully wiped the reverse side, and freed it from any spots and blemishes that may exist. The negative is dried, and if not then sufficiently dense, it is again exposed as before. It is afterwards fixed and varnished in the ordinary way.

BOTTLES should be labelled with the name and formula of the mixture they contain, and care should be taken to avoid the careless confusion and mixing of articles in the dark-room.



WE would call the attention of our readers to the very valuable article of Dr. Napias in this number. "Familiarity breeds contempt," and it is so with us in our handling of chemicals. There has arisen, within our scope of observation, during the years we have practiced photography, cases which have brought us to think more seriously upon the danger of carelessness, than we were wont to do. How often do we see operators mixing cyanide, and even bichloride of mercury in drinking glasses, and thus exposing others, if not themselves, to the danger of sudden death. "A place for everything and everything in its place," is the essential rule for successful working, and we caution all to exercise the prudence Dr. Napias suggests and recommends.

WE notice that Messrs. Van Wagner & Griswold, of New York, have recently patented an improved printing frame, which improvement consists of an adjustable vignet-ting apparatus.

MR. H. A. LESURE, of Orange, Mass., send us a picture of a very useful device for the dark-room. It is a blotting pad for the surplus silver upon the back of plates. A block

of wood, nearly the size of plate used, is covered on one side with blotting paper, and on the other side is a knob for a handle. This little idea will save many silver spots upon the floor, save your holders, and keep your fingers clean. We thank Mr. Lesure for his thoughtfulness in sending his little improvement; all these little *dodges* help toward perfection.

MR. FRANK A. KRONEBERGER, of Philadelphia, favors us with a fine cabinet card, of his own make, which deserves favorable notice as being superior, without any retouching. In these days of excessive work upon negatives, it is refreshing to see a picture once in a while which stands upon its own merits.

WE are glad to notice our friend and former pupil, Mr. J. B. Clifton, of Louisburg, N. C., who sends us some really good specimens of his work. It is gratifying to see such rapid improvement in so short a time; Mr. Clifton does credit to us as well as himself. He experiences some little difficulty, he says, to induce parties in his region to accept really good work, their taste having been vitiated by the class of cheap tin types, which have

been done to death there; but perseverance and good pictures will tell in time.

WHEN one considers the many uses our art is put to now-a-days, the only wonder is, not what we will do next, but how the world ever got along without us photographers for so long a time? Now, if Noah had had a few cartes taken of his family, before he started upon his voyage—or, if he could only have been an amateur, what fine views he might have made of the rising of the waters! But, there—we are wandering off—when it was our sole intention to point out to what extent photography is used for advertising, and to what advantage it might be pushed in this direction. How they might be used upon ball tickets; upon orders of dancing; upon the inside of hats—in a thousand ways—if they be but thought of. You of our brethren who are complaining of dull times, cudgel your brains; get up something of this kind, new and tasty, and see if they won't sell; show enterprise, that is always appreciated.

Our friends must be affected by the warm weather, as our usually large list of prints sent for inspection, is so small this month.

Our friends, Messrs. Arter & Muelk, who have recently fitted up a gallery in Zanesville, Ohio, send us a print from their first negative. It is an Imperial card and a good one; clean, nicely lighted and well retouched. If these gentlemen can commence with such a good photograph, they bid fair to astonish the Ohioans. It is encouraging to see men of energy and talent, starting studios in our art all over the country, and this fact is significant of the good work the photographic journals have done, and are doing, to elevate the Art.

WE have received a fine 11x14 view from the hand of Mr. C. W. Knight, sharp, clean, and taken in the proper light. The detail being excellent, as is shown by the figures being white people, not blackamoors, as most out-door views show them. Mr. Knight is an amateur, who has worked himself into the professional ranks solely by the aid of photographic literature, having no other

teacher than theory, united to his own practice, and his success shows that well directed taste and industry overcomes all obstacles.

It has been suggested to us that it would be useful if we were to describe one or two more of the methods of making chlorine, or, more properly, a solution of chlorine, so as to afford every facility to those who are desirous of converting iodized and bromized collodion films into chlorized ones. The method we described in our last was one which we had found very simple and had adopted with complete success, viz., placing a small quantity of chloride (hypochlorite) of lime in a vessel of water, and adding to it a few drops of hydrochloric acid. We describe other methods of liberating chlorine, and observe, in general terms, that if a current of chlorine gas, by whatever means formed, be transmitted through the water, much of the gas will be absorbed, chlorine water, or solution of chlorine, being the result. Place one part of peroxide of manganese in a flask, and pour over it two parts of hydrochloric acid. Chlorine will immediately be disengaged; and if the mixture be warmed its liberation will be more rapidly effected. By means of a suitable tube the gas may be conducted into a vessel of water. Another method is by the substitution of bichromate of potash for the peroxide of manganese in the preceding experiment. Still another method is to triturate together sixty grains of chloride of sodium and three hundred and fifty grains of red oxide of lead, and put them with eight ounces of water into a stoppered bottle, afterwards adding two drachms of sulphuric acid. Agitate until the red oxide becomes white; allow to subside, and then pour off the clear liquid into another bottle. We have merely to observe that the method we described last week answers for the special purpose intended rather better than any of the other methods, whilst its preparation is extremely simple.

TRIM your prints and mount them neatly, a well finished picture will please generally, and people who are no judges of art can appreciate a clean, well finished photograph.

178483

VOL. IV.

No. 6.

THE PHOTOGRAPHER'S FRIEND.



"LET THERE BE LIGHT."

AN ILLUSTRATED
BI-MONTHLY MAGAZINE,

Devoted to the Photographic Art,

PUBLISHED AT
No. 46 N. CHARLES ST.,
BALTIMORE.

Expose the Wrong! Maintain the Right!

November,

RICHARD WALZL, Publisher.

1874.

CONTENTS.

	PAGE
Farewell.....	161
Curious Customers—No. 11—WM. HEIGHWAY.....	162
Difficulty in Silvering the Paper—J. W. MON- GENEIER.....	163
The Ferrottype—MONROE W. NEIHART.....	164
The Other Side—WM. HEIGHWAY.....	165
Our Illustration.....	167
Beginners—Prof. H. VOGEL.....	167
Our London Letter.....	169
Acids in the Developer—D. WINSTANLEY.....	170
The Status of Photography—F. WALLER.....	172
Theoretical Matters having a Practical Bearing on the Sensitizing of Plates—W. E. BATHO.....	173
Printing Difficulties—ED. DUNMORE.....	175
On Photographic Crystallizations as Seen in the Microscope.....	176

	PAGE
An Optical Delusion.....	176
A Few Words About Printing.....	177
Thoughts Suggested by the Chicago Convention ..	178
On the Method and Chemistry of Applying Albu- men as a Substratum.....	180
The Ammonia Nitrate of Silver Bath.....	182
Sensitizing Gelatin Paper.....	184
Preparation of Ether—O. SUSSENGUTH.....	184
Retouching Negatives.....	185
A Few Hints on Posing—A. J. MELHUISE.....	187
Taking a Photograph—A. D. MANN.....	188
Charles Dickens.....	188
Foreign Notes.....	189
Editor's Album.....	191

THE MEN WHO ADVERTISE.

Anthony, E. & H. T. & Co. *Photographic Stock and Chromos.*
 Anthony, E. & H. T. & Co. *Adamantean Plates.*
 Anderson, J. A. *Photo Apparatus.*
 Bachrach & Co. *Printers and Copyists.*
 Baldwin, A. H. *Photo. Materials.*
 Collins, A. M. Son & Co. *Cards, Mats, &c.*
 Cooper, Chas. & Co. *Albumen Papers, &c.*
 Clemons, J. R. *Paper and Varnish.*
 Cox, John. *Printing.*
 Carbutt, John. *Photo-Relief Printing Co.*
 French & Co. *Voigtländer & Son and Dar-
lot Lenses.*
 French & Co. *Rice's Patent Sherman B. W.
and White Hollywood Card Frames.*
 Fairbank, Murphy & Co. *Mouldings,
Frames, &c.*
 French & Co. *Lenses, Frames, &c.*
 Fitzgibbons, J. H. *Adhesive Picture Mounts.*
 Fairbank, Murphy & Co. *Passe-Partouts,
&c.*
 Gatchell & Hyatt. *Stock House.*
 Gennert, G. & Co. *Albumen Paper.*
 Haworth, J. *Photographic Materials.*
 Hirshberg Bros. & Hollander. *Glasses,
Frames, &c.*
 Holmes, William B. & Co. *Photographic
Stock, &c.*
 Hale, Kilburn & Co. *Picture Frames, Mould-
ings, &c.*

Hirshberg, Holland & Co. *Photograph and
Picture Frames.*
 Haworth, J. *Photo. Materials.*
 Knell, Geo. *Chairs, Lounges, &c.*
 Kelsey, C. C. *Banner Collodion.*
 Kellinger & Co. *Artists' Materials, Chro-
mos, &c.*
 Lewis, R. A. *Collodion.*
 Löffler, J. *Stereoscopic Views.*
 Moulton, L. V. *Photographic Washer.*
 M'Collin, Thos. H. *Photo. Materials.*
 Magee, Jas. F. & Co. *Photographic Chemi-
cals.*
 Marcy, L. J. *Sciopticons and Magic Lan-
terns.*
 McAllister, T. H. *Magic Lanterns, &c.*
 Myers & Hedian. *Mirrors and Fine Arts.*
 M'Collin, Thos. H. *Photographers' Materials.*
 National Photographic Chemical Co. *Shaw's
Patent Process.*
 Pittman, S. E. *Mouldings, Frames, &c.*
 Pattberg & Bro. *Frames, Mats, &c.*
 Phenix Plate Co. *Ferrottype Plates.*
 Peasel, Carman. *Stereoscopes, &c.*
 Phillips & Jacobs. *Chemicals, &c.*
 Ryan, D. J. *Stock Depot.*
 Stoddard, S. R. *Photographic Views.*
 Scovill Manufacturing Co. *Morrison Lenses.*
 Semmendinger, A. *Photo Plate Holders.*
 Trapp & Munch. *Albumen Paper.*
 Woodward, D. A. *Solar Cameras.*
 Walzl, Richard. *Photographic Stock, &c.*

THE
Photographer's Friend.

Vol. IV.]

NOVEMBER, 1874.

[No. 6.

Entered according to Act of Congress, in the year 1874, by
RICHARD WALZL,
In the Office of the Librarian of Congress, at Washington.

FAREWELL.

WITH this number closes the existence of THE PHOTOGRAPHER'S FRIEND as a journal. As our friends might perhaps have expected from our advertisement published a short time ago, the proprietorship has passed into other hands.

We have before given our reasons for parting with THE FRIEND. How reluctantly we part with such a friend, few besides ourselves can know; but other duties call us, and we must yield to the pressure of circumstances. We have no longer the time to devote to its publication, and we must let the smaller interest give way to the greater need. In future, all and our best efforts will be to the betterance of our wholesale trade. Our subscribers must not think that we are ungrateful for their generous support, or that support was lacking; neither must it be supposed that the interest we have always taken, and must take, in the advancement of Photography, has fallen off. The facts are simply these: Our extending wholesale trade needs all our time.

We have to thank our contributors and all of those who have helped us on with our great work, and our best reason for resigning that work is, we would not let it deteri-

orate through the pressure of other claims upon our time.

Mr. E. L. Wilson, the proprietor of *The Philadelphia Photographer*, has purchased THE FRIEND, as the following card will show:

CARD.

The publication of THE PHOTOGRAPHER'S FRIEND will be discontinued from this date. Having become its proprietor, I deem it wisest and best to merge it with *The Philadelphia Photographer*. If there are any who still prefer a bi-monthly magazine, it will be seen by the order sheets which are presented herewith, that the publishers of *The Photographer* will prepare to accommodate them by issuing a bi-monthly as well as a monthly addition, the former being obtainable at the same rate as THE FRIEND.

At the purchase of THE FRIEND I barely contemplated its continuance; but I believe it will be better for the fraternity to devote my energies and time to one interest only. I feel safe in saying that during the coming year no effort will be spared to make *The Philadelphia Photographer* the best photographic magazine in existence, and all that the live and progressive photographer needs. Messrs. Benerman & Wilson are the only

regular photographic publishers in the world. They supply the market at home and abroad with photographic books, and for their catalogue I respectfully ask a careful perusal.

Although *this* magazine will cease to exist, still I trust that its readers will find in *The Philadelphia Photographer* an enterprising and valuable friend.

EDWARD L. WILSON,
Editor *Philadelphia Photographer*,
Seventh and Cherry Sts., Phila.

We hope that the liberal patronage and support which has been extended to us by our friends and subscribers will be continued toward our successor; the high reputation Mr. Wilson has attained as a photographic editor being sufficient guarantee that "the work will go bravely on."

The sale of our journal will in no wise interfere with our regular published Price-List, which will be called, as of old, *THE PHOTOGRAPHER'S FRIEND AND REVISED PRICE CATALOGUE*, and will be issued as often as called for; and through this medium we will occasionally greet our old friends and customers.

RICHARD WALZL.

IN addition to the words of farewell written to our friends by the proprietor and publisher, we must add our own. No more, after this number has been issued to the fraternity, can we write with the all important though ambiguous "we." No more can we give friendly notices of good photos sent us by brother operators. No more gather unto ourselves fine stereo views, or extend kindly meant hints to those who are in trouble and write to us for relief.

With this number we close our editorial career, and announce ourself among the great army of office-seekers—"hungry for place;" for owing to the disposition of this branch of the business, and other changes, the proprietor and I part with mutual regrets; and as will be seen by reference to the advertising columns, we are in search of a situation.

After a year's experience as an editor, we can say that though the work entailed has sometimes been arduous, it was a "labor of love;" and the many friends we have gained are an ample reward to

F. WALLER.

CURIOUS CUSTOMERS—No. 11.

The Man with the Profile.

THERE is, perhaps, nothing so irritating to the touchy artist—and that's saying a good deal of the class who are annoyed at everything—as to come into contact with the customer who thinks he knows to a hair's breadth what he wants. In the first place, an "artist" thinks he knows what is best in every case, and if he is disposed to relax his dignity for a moment, (which I am prepared to doubt strongly,) it comes back with redoubled energy the moment he hears his sitter has an idea of his own, and he is prepared to wrestle with that presumptuous individual, and to frustrate his every wish; and in the second place, a photographer of this class thinks that to acquiesce in the plans of his sitters is an admission of want of knowledge on his part.

It may happen that the customer also has an idea of the smartness of his own opinion, and is one of those ornaments of human nature who would rather die than go back on his word, however idiotic his utterances might have been. It is possible, too, that his position may be strengthened by having in his possession a picture by a celebrated foreign artist, in the identical position the obdurate customer has set his mind upon; and then to give in to a muff of a fellow-countryman—why, the idea is preposterous!

I have seen these two opposing elements waging fierce war with unnatural calmness, each prepared to be cremated rather than give in. It is truly an edifying sight. The photo man, with all his country's wit about him, has dealt his customer what he thinks a crushing blow with the unanswerable logic of this little speech:

"Be kind enough to tell me, sir, what you

would think of the man who put his case in the hands of a lawyer, and then wanted to dictate to him the way of conducting it; or would you like, if you were a doctor and had a patient whose symptoms you had listened to, to hear that sick man turn round on you and say: 'Doctor, that's not the best thing for my complaint. I want the tincture of this and the essence of t'other; *that* brought me through the gout, and it will work wonders for my cough.' Now I ask you as a man of sense!"

Good sound sense, expressed in good style. What has the obstinate sitter to say to that, eh? Does he back down? Not he! With the greatest politeness he replies:

"All very well, sir—very well indeed, sir, in ordinary cases. But I want a profile: the best view of my face. My friends all say so—and *I know it*. I want it, and shan't be satisfied unless you take that view."

"Now, three-quarters——" suggests the man of art.

"No quarter" is the tone of the customer, as he says:

"I'm always taken in profile. Every photographer but you says my view is profile, and I've sat to all the best artists at home and abroad. Now, look at this picture, taken by Vermicelli, in Naples. Splendid artist, Vermicelli—best in the world."

The American artist isn't going to bow down to any foreigner—never did and never will. But unfortunately the customer won't give in, so Mr. Focus must take other means to convince this confoundedly obstinate fellow.

"Well, if you'll be satisfied with such a caricature as that," he says, spitefully, "a profile will certainly be best. If you want a picture such as *I can give you*, the best thing you can do is to place yourself under my direction."

"Make me a profile and I'm satisfied."

Now comes in true art. Mr. Focus is working under protest. It must be patent to the weakest mind that he is not going to make a good picture: to do so would be to prove himself in error. If the sitter places

himself awkwardly in the chair, is he going to correct his pose? No! It's his funeral; not Mr. Focus's. Is it his duty to correct the light? Certainly not. Let it be flat, if it likes—nay, he improves (?) it by pulling back another screen, so that it is dazzling. Hurts the profile man's eyes, does it? So much the better. The plate he exposes is a nice sight—a few thick collodion lumps, and beautifully ridgy. Obstinate sitter shouldn't want a profile, then! Causes streaks in the development, too—all because the idiot *would* be taken in profile!

The sitting made, the customer who has had his own way is quite beaming with amiability. Pats on his hat to go.

"Now I've got one in profile, would you mind my showing you what sort of picture I should make of you?" asks the defeated artist.

"Oh, not at all. I'll sit in whatever position you desire, but I know I shall like my profile."

Then our artist lays himself out in elaborate style. Pity the sitter didn't insist on some other view, as Mr. Focus begins to think he would like to make a profile, after all; but that would never do. Careful pose—fine lighting—chemical manipulation perfect this time. This shall be a specimen of artistic photography indeed. Time exactly right—the image comes out round and bright under development. Our artist glows with delight at the thought that his picture will be the chosen one. But, bless you, on the morrow, when the proofs are shown, the profile is the favorite. How consistent these obstinate men are!

WM. HEIGHWAY.

Difficulty in Silvering the Paper.

J. W. MORGENEIER.

IN our leading photographic journals the complaint has often been made that silvered paper will sometimes dry in tear-drops, rendering it useless. This stubborn evil, which has probably met many photographers, has had many proposed remedies, and I take this

occasion to offer my own experience as to the cause of this appearance.

The only real reason and cause for "tear-drops" is found in a too hard and dry surface to the albumen paper. This is the same with all the different papers in market. I observed that this trouble made its appearance in many galleries and in certain districts at the same time, thereby proving that the silver bath is *not* the cause, for some may be using a new bath, others an old, each made differently; but in some parts they may have a damp atmosphere, at others a warm and dry. A certain quantity of paper, hard and dry, is distributed by the dealer among his customers, and the trouble arises.

Different communications from brother photographers at various times prove this beyond a doubt. My remedy is, immerse the paper two seconds in absolute alcohol, hang up and dry, then put in portfolio to straighten, and it is ready for silvering. This simple and economical process makes the paper work brilliantly, and gives perfect satisfaction.

THE FERROTYPE.

MONROE W. NEIHART,
Franklin Centre, Lee Co., Iowa.

In the following few remarks on ferrotyping, I do not claim to have set forth anything new, but for the special benefit of those photographers who have so far neglected making this magnificent picture, I shall endeavor to set forth an old, reliable and tried process. I find, by looking over our journals, that so little is said in regard to the positive photo. Our public writers never take a second thought to see that they are neglecting something which is fast taking the lead of the negative picture. But few of our plate slingers have made any effort, in setting forth any process, to make the ferrotype. If we had a few more leaders like Mr. Estabrook, A. K. P. Trask and a few others, we would be willing to wager our little canvas-covered shanty (which we use as an operating room) against a five-cent piece that the ferrotype

would excel the dull and clumsy paper picture in less than five years. I do not wish to show any partiality when I pass the above compliment of the photo, but, nevertheless, I mean just what I say.

Now in the following formulas we will find, when developed out, something very nice in the line of a ferrotype or positive photo. First we will make a reliable collodion: Ether conc., 10 ozs.; 95 per cent. alcohol, 8 ozs.; gun cotton, about 6 grains to the ounce of the above mixture, and to the 18 ounces plain collodion add iodide of ammonium, 80 grs.; iodide of cadmium, 40 gra.; bromide cadmium, 55 grs. This collodion should set in the dark from five to six hours, when it is ready for use.

Those not wishing to make their own collodion can always find a reliable make with stock dealers. I have always found R. Walz's unrivaled collodion all that is required of a commercial make. Next take 30 ounces of pure water, add 8 ounces of nitrate of silver, iodide with 6 grains of iodide potass.; drop in, drop by drop, nitric acid, C. P. until it first turns blue litmus paper, then stand in the sun three or four hours, filter, and you will have a reliable gem bath.

Next, we will take for developer, 8 ounces of soft water, add to this $\frac{1}{2}$ ounce proto-sulphate iron, $\frac{1}{2}$ ounce acetic acid and 2 ounces of saturated solution of alum water, which is made by taking 1 ounce of alum, pulverize in a mortar, and add about 8 ounces of warm water, let dissolve all there will, then mix with developer as above. After the bath has been worked for some time, and the developer refuses to flow evenly, add to the developer $\frac{1}{2}$ ounce of alcohol to each 8 ounces of solution. Now we are ready to flow a plate: take the plate in the left hand, pour the collodion on the right hand upper corner, let it flow slowly and steadily toward the corner to the left, then to the left hand lower corner, and then let the surplus fluid drain back into the bottle from the right hand lower corner. Now immerse the plate slowly in the bath, but don't allow it to stop before

the plate is covered with the solution, or you will find it streaked when the developer is worked. Now, when all greasy appearances have vanished, and the film on the plate looks perfectly smooth, the plate is ready for exposure.

You have ready some handsome young lady, who has made known to you just how she wants her photograph taken on tin; you proceed to pose her under a tolerable strong light. Expose your plate from five to sixteen seconds; then intimate to your sitter she is through, which will surprise her how quick her tin photographs were made. Now for developing the hidden image: Remove the plate from the holder, holding it the same as when flowing with collodion, pour the developer on the right lower corner where the collodion is the thickest; in a few seconds you will see the image appear; continue the developer until the shadows come out plain and the features are brought out well, then hold under the water tap until all greasy appearances have disappeared; then clear with cyanide potassium and water, which should not be too strong. When perfectly clear wash again, when you can show the picture to the sitter. Now if all is satisfactory dry the plate, then tint the cheeks slightly with some nice flesh color, and it is ready for the varnish.

I find that I can get Anthony's Diamond Varnish just as cheap as I can make it; therefore, I would recommend it to all who make this picture. Coat the plate nicely with the varnish; the varnish when dry will give the picture a very bright, fresh and glossy appearance. Now cut the plate to size required, and mount it with some gem mats, which are made on purpose for our pictures.

—♦♦♦—

THERE are twenty periodicals in the world devoted exclusively to photography, besides six annuals. Of the periodicals, there are published in America, 5; in England, 8; in Germany, 5; in France, 2; in India, 2; in Belgium, 1; in Holland, 1; in Italy, 1. Of the annuals, America publishes 2; England, 2; France, 1; Austria, 1.

THE OTHER SIDE.

WM. HEIGHWAY.

A PERUSAL of photographic literature will show that the members of the profession bestow most of their care on an attainment of excellence in the various manipulations, and the thought of raising photography to the dignity of an art. No one would feel disposed to find fault; but when we see that so little is said on the subject of the business responsibilities, one feels that a grave omission has been committed.

It appears to us that, not neglecting to strive hard to make his work perfect, the photographer should give his best thought to the management of his customers out of the posing chair. Before he studies the question how to light him, he should strive to delight him by attention and politeness. Many men can treat their customers well enough from an artistic point of view, but are not so happy in a business or social relation.

There is a good adage anent a culinary operation, "First catch your hare, then cook him." It appears to us that we are making ourselves first-rate cooks, and neglecting the hunting part of the operation.

There is, perhaps, excuse for this—it is even commendable that photographers should do their utmost to study art and elevate their profession. Unfortunately, however, photographers generally have a chain attached to their legs, preventing them soaring to the realms of high art unless they can take a dull public with them, and this weight is the business portion of the profession.

"Dollars" is the dolorous cry: "Dollars we must have, to do anything great."

Therefore, pay all attention possible to the reception room. Strive to understand what they want, and direct their ideas into the right channel; and above all, tempt them with your better styles and larger sizes of picture—this, rather to the benefit of your pocket.

You will find your sweetness has not been wasted on the desert air, nor will your gallery present a deserted air.

CHARLESTON, TENN., Oct. 8, 1874.

MR. R. WALZL, Baltimore.

DEAR SIR:—Doubtless you will think strange of me for writing you such a letter as this; but my object is to gain information. When I learned photographing, I worked under a photographer who, I am sorry to say, was a grand rascal, and did not do his duty as he promised to do. He did not learn me how to keep my chemicals in working order; all I know about it I learned myself after leaving him. Now if you can consistently tell me how to doctor my baths when out of order, I shall always feel under many obligations to you. I have been working at this business over a year, and just been knocking along the best I could in this respect. *THE PHOTOGRAPHER'S FRIEND* touches that lightly—hardly enough to get a correct idea of all the necessary properties to remedy the bath. I desire to know what chemicals will restore a bath to working order when it is too alkaline or too acid, and by what features to tell what is the matter; in fact, all about it, if it is not asking too much of you and your time. By so instructing me, you will greatly oblige your brother in photography. Wishing you great success,

I am yours, very truly,

J. G. BALL.

[In answer to our correspondent, Mr. J. G. Ball, we would explain as a reason for *THE FRIEND* having touched so lightly upon the doctoring of the bath, that the remedies have been so often published we were afraid of becoming wearisome; but we will endeavor to give our friend a correct idea of the difficulties that sometimes beset a silver bath, the causes and cure.

A bath properly made contains nitrate of silver dissolved in pure water; iodide of silver dissolved in the nitrate solution, and a slight quantity of nitric acid. The purer the water and silver, the less quantity of acid required. Acid is generally regarded as a restrainer and as an anti-fog agent, but its real uses is as a solvent of the foreign matter which may get into the bath. *It does not*

necessarily prevent fog, nor does it cause slowness of working.

Let us make a bath in the simplest, handiest way: To 33 ozs. of water add 120 grs. of silver, 6 grs. of iodide of potass., and set in the sun for at least forty-eight hours; then add 2½ ozs. of nitrate of silver, stir well, and allow to stand four or five hours more in the sunlight, filter, and you have a pure bath to start with. Test this solution with litmus paper, and add nitric acid drop by drop until the paper turns faintly red. Your bath is now acidified. Next test your bath to see if it is sufficiently iodized by allowing a coated plate to rest in it ten minutes; if the collodion appears to be eaten off in lines running the same way the plate was dipped, the bath needs more iodide of silver, which make and add in this way: Take 10 grs. of silver and dissolve in 1 oz. of water in a separate glass, dissolve 10 grs. of iodide of potass., and throw these two solutions together in the dark; allow the yellow precipitate formed to settle, pour off the water and fill up the glass with fresh water, settling and pouring off as before; do this three or four times, drain the precipitate as dry as possible and add to your bath and allow to stand over night always in the dark, filter, when it is ready for use.

When a plate is dipped in a silver bath the object is to obtain a coating of bromo iodide of silver, which is formed by the silver in the bath uniting with the bromides and iodides in the collodion. In this operation the bath loses some of its silver, and the collodion part of its alcohol, ether, bromine and iodine. A certain quantity of these chemicals in a bath is necessary for its perfect working, but after many plates are dipped the bath becomes weak in silver, and saturated with ether, alcohol and iodine.

That the bath is weak may be known by the length of time required to coat a plate; that it is saturated with alcohol, by the difficulty in coating it perfectly, the greasy lines refusing to disappear, and excess of iodine is shown by a sand-like deposit over the plate when brought from the bath, which causes,

when developed and fixed, small black pin-holes.

To rectify a bath showing either of the above troubles, drop ammonia carefully into it until just neutral, that is, will not turn blue litmus red or red litmus blue; set this in the sun until it blackens and clears again, put them in your evaporating dish and boil slowly down to about one-half the bulk; now add pure water, that is, such as has been treated as first described, which must always be kept on hand, until the hydrometer indicates the right strength, 45 grs.; filter the solution, make slightly acid again, and it is in good working order. Should you require more solution than this doctored bath will give, do not add silver to it, but add new bath made as first directed.

When a bath is too acid, neutralize carefully with ammonia, exercising great care not to overdose; when too alkali, add acid carefully. A bath too acid produces opaque spots like dirt over the negative or ambrotype, spots more intense than the rest. When alkali the plate will have a grayish dust or fog over it, which can be rubbed off with the finger.

Now for a few difficulties frequently blamed upon the bath. Dirty plates producing fog, light leaking into dark-room, camera or holder producing fog, undertime and overtime, both fog producers, old developer with too little acid, dirty fingers, dirty corners to the holders, and dirt everywhere—all first-class foggists. Streaks come from drying the plate too long or not enough, from stopping the plate in bath before it is covered with solution, insufficient coating, too strong developer and careless flowing of same. Spots come from dirt not filtered out of bath, collodion or developer, and from dusty unclean rooms.—EDITOR.]

THE idea is urged by some that, under ordinarily favorable circumstances, man can live six or seven times longer than the years—fourteen—required to attain puberty. Statistics are given showing that medical men, in England particularly, stand high in the scale of longevity.

OUR ILLUSTRATION.

THE picture which we present with this, our last number of THE FRIEND, was made in the photographic department of R. Walz's establishment, and is a fair sample of the every-day work produced there. These pictures were not made especially for the journal, but were selected from among our negatives as examples of the manner in which the chemicals and material manufactured and sold in our wholesale department work. We leave, therefore, their praise or criticism to the photographic public.

The negatives were made, and the figures lighted and posed, by our retiring operator, Mr. F. Waller. The lens used was a Voigtlander & Son, on a new A. O. Company box provided with the latest improvements. The prints were made in the printing department, on H. Morgan's Extra paper. The formulas used were precisely the same as have been before published, and those that are now in our Price Catalogue, and which are, we hope, in the hands of all. (In this connection we would say that the Catalogues are free, and if you have not received one, send for one at once. They contain much valuable information that all photographers should possess themselves of.)

BEGINNERS.

PROFESSOR H. VOGEL.*

OLD and young, when they take up photography, have generally no ideal purpose in view beyond the practical project of gaining their daily bread with the aid of the camera. They care very little for the chemical reactions, or the action of the light, or the disposition of molecules, &c., and less still about the question whether photography is really an art or not; their object is to create a good business, and this goal they try to reach as quickly as possible. Generally speaking, they begin by undergoing a few weeks' tuition under some other pho-

* Photographische Notizen.

tographer, where they learn to coat a plate in a passable manner.

I am often asked how long is really necessary in learning to become a photographer, and I always reply that the matter very much depends upon the individual himself. Those who possess a knowledge of chemistry, and have natural aptitude, will learn to take negatives in a very short time. I could mention a well known scientific man who studied my manual carefully, and came into my studio impressed with a good deal of technical knowledge of the matter, therefore; and under these circumstances, there was realy nothing for him to learn beyond the practical manipulations, the pouring on of the collodion, developer, &c., and the adjustment and working of the apparatus, things obviously that can only be taught by demonstrations. This gentleman was qualified to operate in five days. Of course, during this short period he had not been looking on with his hands in his pockets, lounging about under the impression that he knew enough, but he practiced at home what he learnt from day to day, and was exceedingly successful in what he did.

Another pupil that I had, who was an exceedingly good chemist, and thoroughly acquainted with the materials which he had to manipulate, turned out quite the reverse, for after six months' tuition he was still a clumsy operator. He belonged to that numerous class which are usually termed "Butterfingers." When he took up a plate to clean it, it slipped through his fingers; the dipper he would infallibly break after one or two experiments; the developer ran off the plate; and the filter never acted under any circumstances. I was exceedingly glad to get rid of so awkward a pupil, for I could never have made anything out of him. These two are, of course, merely instances, and do not hold good in all cases.

There are people who enter a studio without any previous knowledge, and who are exceedingly quick in picking up the first rudiments of the art. In a week they are so self-satisfied that they hasten home to follow

up their success, but, unfortunately, find themselves stuck fast in a day or two over a question about which they possess no experience.

The matter is easily explained. It is easy enough, when you have good plates prepared for you, good collodion, good dipping bath, good developers, intensifiers, &c., to secure a good picture, especially when found in a well regulated studio; success is here obtained without difficulty; but the beginner has to thank the pure chemicals and the photographer who has prepared the baths and solutions for it, for he does not know how soon these may become changed after working or standing some time. He finds that the collodion—especially if the drainings go back into the bottle—becomes thicker and thicker; it gathers dust and impurities, and thus spots and stains are produced, whose presence he is unable to explain from his eight days' apprenticeship. It is the same with the dipping bath. Unfortunately, a bit of lime or kaolin has fallen into the solution, and this has rendered it slightly alkaline, and at once the plates show signs of fogging; or, again, the collodion is full of organic impurities, which produce streaks on the sensitive plate; or the film has other defects, such as pinholes, patches of insensitiveness, flatness, &c. All these phenomena, which may not come unexpectedly to those who have studied a photographic manual, are enough to confuse any beginner who relies upon his own brief experience in the matter. If to these well known defects we add, moreover, those that arise from faulty exposure or intensifying, bad fixing and varnishing, we have no inconsiderable host of disagreeables. I have pointed out in my manual as many as sixty different sources of failure, and this number is by no means complete. Those who desire to know something about these vexatious phenomena, and the means necessary for their avoidance, will not be able to finish their apprenticeship in a week, for it is only long practice and study that make the skilful photographer.

There are some people who work well

enough under the guidance of another, but who are quite helpless if left to themselves. I have had pupils who, after six months' tuition, always come to me nervously with the question, "How long shall I expose?" These very seldom make good operators. Others, again, never come for advice at all, but at once set about preparing a second plate, in case the first has not been sufficiently exposed. These latter always learn something. I can mention others, again, who deemed the operation of plate polishing far too tedious, so they turned their attention to the matter of albumenizing the plates, but only experienced worse and worse failures. They employed one collodion after another, hoping in the end to find a way out of their difficulty, and never thinking for one moment that when strange materials are made use of, some time must elapse before they can get thoroughly acquainted with their behavior, for their employment may perhaps involve the application of chemicals other than those at hand.

Some little time ago I narrated an instance of an old and worthy photographer who could secure no results at all with a collodion which, in my hands, worked perfectly; and therefore a beginner may very well encounter such difficulties without being able to help himself at all. Of course the photographer in question was simply an operator, and had scarcely any knowledge of chemical principles, which are so necessary in employing collodion and dipping bath, to which it is the custom to ascribe most failures.

Dr. Jacobsen says that a little chemistry should belong to the culture of all men; and the photographer is a man. There are many operators who take excellent pictures, and yet boast that they know nothing of chemistry. This, however, is mere nonsense; for such people, if they have not studied chemistry theoretically, have been so long working with photographic chemicals and observing the reactions, that they have become possessed of the chemical properties of the things employed. They know from experi-

ence that iodide of ammonium when decomposed gives off iodine, and becomes red; that iodine colors collodion yellow, and starch blue; that nitrate of silver is easily dissolved in water, and in alcohol only with great difficulty; that it freezes at a high temperature, and becomes decomposed in one still higher; that it dissolves iodide of silver; that it is reduced by organic substances, &c.

In the building up of this practical knowledge piecemeal, of course many a pint of collodion is lost, many a costly silver bath thrown into the residue pan, and much valuable time frittered away in aimless experiments. The same amount of chemical knowledge they could have acquired in a tenth part of the time and tenth part of the cost by studying photographic chemistry; and this knowledge is readily acquired, for photographic chemistry occupies but a small section in the thick manuals on organic and inorganic chemistry.

OUR LONDON LETTER.

[From our London Correspondent.]

LONDON, September 30, 1874.

DEAR MR. EDITOR:

It is quite too much to expect of our delightful London climate that it will not give us cause for grumbling on account of fogs and rains. I think I may say, looking carefully back over an acquaintanceship of twelve long years, that I *have* known it to keep clear and fine for six consecutive days. I advance this belief diffidently, and am open to conviction that I am in error. I may be, but certainly, at this season of the year, there is no mistake about the fact that Old Sol has a very hard time of it, for he can scarcely maintain his ascendancy in the heavens a day without having his smiling face dimmed with tear-drops, or suffer the indignity of being snuffed out entirely by thick murky clouds or villainous yellow fog. When I think of the beautiful, clear, bracing fall days of New York, I cannot help comparing the joys of the operator in that place

with the miserable lot of his brother in these parts. I have heard grumbling protests against an unkind Providence that would not accord one wet day a week as a rest for the weary: here we humbly pray for *one fine day in the six*. Sometimes, when the stove in the skylight would persist in burning the wrong way, its smoke rushing out into the gallery instead of up the chimney—something the matter with the flue was asserted, as we fluently profaned our mother tongue—we managed to raise something like the ghost of a London fog. We could lay our ghost, but a true fog is not so easily got rid of. The winter of our discontent is at hand, and with perturbation of soul we contemplate the prospect. This should be read by you as a moral homily, teaching the beautiful lesson of thankfulness.

Perhaps, with such a cheerful climate—one so conducive to the interests of our art—it is not wonderful that we should pay a great deal of attention to the mechanical processes, and many beautiful examples of portraits and landscape studies are exhibited.

We have a weekly theatrical paper, embellished with *cartes de visite* of “celebrities,” published at the modest price of four cents (2d). For some time it was sold at *two cents*, but the publishers, seeing their way to a little more profit, made a slight addition of printed matter, and raised the price. I had hoped that they would have seen fit to exercise a little more judgment—if they had any—in the selection of prints, as most of the copies were hardly up to the mark; but I fail to see any improvement. These pictures will scarcely do credit to Mr. Woodbury, by whose process they are made, except to show how cheap (and, I am tempted to say, how nasty) they can be manufactured.

I hope I shan't offend any susceptible republican by introducing the subject of princes into this letter. Two members of our royal family are conspiring to rob the poor photographer: one as an amateur viewist (I purposely suppress the name of the Duke of Edinburgh in this connection), and the Duke

of Connaught (who shall be nameless!) as a portrait artist.

Photography has been causing that irritable body, the French Government, a great deal of anxiety. A large batch of invisible portraits of the Prince Imperial, (more prints, you see!) who, though lost to sight, is, it would appear, still to memory dear, and memory is refreshed by placing the picture in a dish of water, when H. I. M. Napoleon IV. smiles upon you—nay, the paper reassumes its puzzling plainness.

Photography struggled to the front at Coomassie. I have seen half a dozen very decent imperial cards taken by an officer of the Royal Engineers, one, of the special correspondents of the London and New York papers, being very good as a specimen of out-door work (and that, most likely, under difficulties).

The camera has also walked into Central Africa under the guidance of Herr. Reméslé, of Berlin, who has been attached to the party of the well known traveler, Gerhardt Rohlfs, sent by the Viceroy of Egypt to explore the interior of Africa.

We are suffering from two acute “regrets” just now. One is experienced by “Nature” that there is a lamentable lack of science in the practical books on photography. When I remember how some books I have read made my head ache, I feel sorry that “Nature” should not have got hold of them. And the other “poignant regret” is felt by some of our photographers who find the dull time hangs heavy on their hands, and write about the “status of photography.” I fear we shall have a good deal of this during the foggy season.

ACIDS IN THE DEVELOPER.

D. WINSTANLEY.

I SUPPOSE that perhaps every photographer in the country, if not every photographer in the world, makes an addition of acid to his iron developer. I certainly have always done so, and know of no one who does not.

The circumstance is one which suggests a deep-seated, if not a well-grounded, belief in the use of such addition. I am not going to startle the reader by a statement that such belief is destitute of all foundation; but I am going to detail a few experiments which satisfy myself that the *amount* of acid usually employed is extravagantly large, and that, *perhaps*, there is no necessity for its being employed at all.

The functions alleged to be performed by acids in the developer are threefold. They are said, firstly, to restrain the impetuosity of the developer; secondly, to cause an accumulation of density in the image; and, thirdly, to prevent a certain abnormal form of deposit known as "fogging." In view of these considerations we should be led to expect, on the development of a picture in the absence of acid, firstly, an impetuous and sudden flashing-out of the image; secondly, a general weakness or want of intensity and contrast therein; and, thirdly, the abnormal deposit—fog.

In the course of certain investigations in which I have been recently engaged I found it desirable to verify the various properties of the developer, and amongst them the influence of acid therein. The collodion used, which was colorless, was that of a well known maker. The bath solution, thirty ounces in volume and thirty-five grains to the ounce, was prepared from neutral crystals of silver nitrate, and acidified with one drop of strong nitric acid. Several plates had been dipped in it, and at the time of the experiments it was in excellent working order. A solution of plain iron sulphate was prepared—one drachm of sulphate to four ounces of water. The reaction of this solution was ascertained and found to be *slightly* acid.

A half plate scratched with a diamond was coated with collodion and plunged into the silver bath. It was then placed in the slide of a "double-backed" camera, and the halves exposed for equal times and in immediate succession to the same collection of objects. The above plain iron solution was poured on one half of the plate (which, of course, was broken

for separate development) and on the other two drachms of the same solution, *plus* three drops of Beaufoy's acetic acid. The result was that the side subjected to acid development had palpably more density and palpably more detail than the side developed with the plain iron. The latter, however, was not fogged at all, so that, unless we attribute its freedom from this defect to the very minute fraction of the one drop of nitric acid carried from the bath, or to the trace of sulphuric acid, which produced the faint acid reaction of the plain iron solution, we must infer that acid is not needed in the developer to prevent fogging. More detail and more density was the verdict on that half of the plate developed with the acid solution. Was this detail or was this density a result of the acid, as such, or how? It was the thick end of the plate, or rather of the film, to which the acid developer had been applied. Accordingly, the experiment was repeated exactly as before, and in this instance the thin end of the film received the acid development. Result: more detail but not more density, as a consequence of the acid development. Manifestly the increase of density observed in the first case of acid development ought to be attributed rather to the greater thickness of the collodion film than to any action of the acid.

The observed increase of detail in both instances of acid development was, however, to say the least of it, anomalous. Surely nobody ever supposed that acids were, in themselves, developing agents, and by their addition to another solution would bring out an increase of detail. In making the development with the acid solutions, it was observed that they flowed better over the plate than the simply aqueous ones. Might not this more adhesive flow give a better opportunity for the action of the developer?

A third plate was prepared and exposed as before and its halves developed—the one with two drachms of the plain iron solution *plus* three drops of acetic acid, the other with an equal quantity of iron solution *plus* nine drops of acid. The idea in this case was to procure that adhesion to the plate which the

acid evidently gives in both instances, and to detect the effects of the acid, apart from this, by the difference in quantity. Result: same density and same detail.

A fourth plate was then tried, using two drachms of iron solution *plus* three drops of acid on one side, and two drachms of iron solution *plus* twenty-seven drops of acid. Result: density the same on both halves; detail rather less on the half brought out with the more acid developer.

The final and complete conclusions from the experiments here detailed are that with the silver bath very slightly acid, collodion neutral, and plain iron possessing a faintly acid reaction:

1. That acid to the developer is unnecessary to prevent fogging.
2. That an addition of it does retard development; for with each increase of acid the image came out with more reluctance.
3. That it does not increase the density of the deposit.

In reference to the retardation, it is of very questionable desirability in the instance of a plate which has been well timed, as in such a case development stops of its own accord at the right time; but, even if considered desirable, it can, as I shall hereafter show, be obtained by other and simpler means. In short, in circumstances of collodion, bath and iron solutions such as I have named, no acid need be added to the developer at all.

As shown by the experiment in which twenty-seven drops of acid were employed, a decrease of detail was the immediate result—a decrease which there can be but little doubt would have been still more manifest with a further addition to the acid. As there are other and more desirable methods of procuring adhesion of the developer than the addition even of a small quantity of acid it seems to me that, as a rule, any direct addition of acetic acid to the developer must be regarded as certainly unnecessary and possibly injurious.

In another article I propose to call attention to the effects of acid in the developer when the bath employed has been overworked

and is surcharged with ether and alcohol from the collodion. I may premise, however, that they are substantially the same as those herein described.

As will be remembered, Mr. McLachlan, of Manchester, called particular attention, some years ago, to the fact that an absolutely neutral bath is capable of yielding the most desirable quality of negatives. I am not yet prepared to say that with all the chemicals in an absolutely neutral condition such results are to be obtained; but it does seem to me not improbable that the chief use of acids in the photography of the past has been in counteracting the effects of those numerous impurities with which the photographic chemicals of the time seem to have been particularly infested.—*The British Journal*.

The Status of Photography.

F. WALLER.

THERE seems to have been of late a revival of this subject, and an importance attached to it that, in my opinion, is hardly warranted.

It can make no real difference to the actual standing of photography if it be regarded as an art or not, nor can it affect our social positions if we, the workers in photography, be classed as artists or artisans.

Photography in the hands of the proper persons rises to the dignity of an art; in others it remains merely a chemical operation, to be classed upon the same level as other chemical operations used in manufactures that require a certain amount of judgment and experience.

When a photographer has passed beyond the boundaries of manipulation alone, when he exercises his taste, skill and imagination in the production of the beautiful, he may call himself an artist, and will be esteemed as such by the world.

Art is the reproduction of the beautiful in nature—mere copying alone is not art; it will not do to call all who prepare a *fac-simile* of the human face artists.

Were a painter to sit before his canvas,

and portray thereon so faithful a delineation of a wall paper pattern that the grain of the paper might be seen, that would not be art, but mimicry. Any one of fair powers might hope in time to acquire the manipulative skill to do as much, and yet be very far from an artist. But should that painter fill his canvas with a creation of his imagination, something that would tell a story to you of some almost unthought ideal, or should he copy exactly nature, but throw over that reproduction the living touch of genius, paint her in the best mood for suggesting what the picture has to say, then he is an artist.

And so with the photographer, when he takes his instruments, his chemicals, and his knowledge of manipulation, and adds to these the efforts of his brains, when he seeks to mould the nature presented to him to its fairest shape, and when he attains that end then he is an artist; then he places his standing and the status of his productions beyond cavil.

As for the social position of a photographer, if it does not rank as high as the learned professions, we have ourselves to thank for it. There is plenty of room in photography for all the culture, all the refinement, and all the learning that can be brought to any vocation; and if we have not eminent *savans* interested as yet in the drawings of the sun, the time is coming when we must and will have them.

There is nothing in connection with the practice of photography that can be called degrading; on the contrary, it should tend to develop our finer sensibilities. And if we here and there see persons who, in the search of lucre, forget the laws of God and man, it can be only regarded as an individual falling away, and can in no wise be visited upon us as a class.

We make our own positions in the world, however much we may blame luck. Each one of us attains the highest station we are qualified for; if we do not, be sure there is something lacking; and if we are not really recognized as artists and photographic productions classed as works of art, be sure,

then, we have not reached the foothold to claim this distinction.

The time has gone by for struggling genius: education and republicanism has made its recognition easy. The world stands ready—nay, anxious—to welcome talent let it but appear.

Let us conduct ourselves like gentlemen; study hard and exercise such talents as we have at command, and we will take position as professional gentlemen without trouble. But no amount of argument will be able to prove that the mere taking of a picture is art, or that all capable of making a picture are artists.

Theoretical Matters having a Practical Bearing on the Sensitising of Plates.

W. E. BATHO.

THEORETICAL matters have not, perhaps, much interest for practical photographers; but the necessity for some theorizing is obvious, unless everything is expected to be discovered in a hap-hazard manner—an expectation which will never be realized. It is quite the fashion to “pooh-pooh” the theorist. Probably it is sometimes right so to do; still, on the other hand, it may be said that were it not for one theorist—I mean Dalton—most of the manufactures of this and other nations would have been in a far less advanced state than they are now found. So an ounce of practice is *not* always worth a pound of theory, and it is not always wise to ignore theory on the ground of its being such; the time for it to be thrown overboard is when it is not in accordance with facts. So much by way of digression.

It is a well known fact in photographic practice, that a bath does not give the best results until after a few plates have been immersed therein. Of course, it is assumed that it has been iodized, so that such phenomenon is not owing to the solution taking up iodide of silver at the expense of the plate. No photographer would, or rather should, allow this. So here is an effect,

namely, that it takes a short time to get the bath into the best working order, and for this effect there must needs be cause sufficient to produce it; and if that cause can be pointed out, it is probable that such may be avoided, so as to enable one to produce a bath in the best working order at once. Here is a case, so far as I am concerned, where theory has been more valuable than practice. It is true that one might have stumbled across the means to the end by chance, but theory leads us to it in a way that possibly I may make clear to others. Previous, however, to doing so, attention must be recalled to the details of some experiments with baths which the readers of this journal have had an opportunity of perusing in these columns some time back. I cannot just now lay my hands on the particular number; but the burden of the article was to the effect that, if a plate be sensitized in a weak bath, any subsequent immersion in a strong solution does not produce a plate giving such good results as one where immersion in a strong solution takes place at first—the image produced lack that bloom which is so desirable a quality in a negative.

If this be accepted as a fact—and I imagine that a few experiments will convince the sceptical of its being such—there is some ground for theorizing on it when viewed in relation to the admitted fact that a bath does not work in its best condition until a few plates have been dipped therein.

When a plate is dipped into a bath a double decomposition is set up, nitrates of the bases of the iodizer being formed along with the iodide and bromide of silver upon which the image is to be received, the ether and alcohol of the collodion mixing with the aqueous solution. We all know that ether is not miscible with water, but is so with alcohol; while alcohol is miscible with water in any proportion, and hence when a collodionized plate is plunged into a dipping bath-holder containing a silver solution in which there is no alcohol, the tendency of things is for a layer of ether and alcohol to be formed in immediate contact with the

plate, and the silver solution to be admitted to the film in such a state as to favor the formation of a layer of the bromo-iodide, such as is formed in a weak bath: in fact, a plate is produced such as might result from immersion in a weak, followed by a strong solution. After a while, when a certain proportion of alcohol is taken up by the bath, it mixes more readily with the ethero-alcoholic film, and the best conditions are obtained.

If this be the cause—and in the writer's opinion it is so—the remedy is not very difficult to find. The first and most obvious one is the addition of alcohol to the bath previous to any plates being dipped therein. This has already been recommended by Mr. Sarony, but in his case for the removal of stains occasioned by the use of a new bath; and the connection between the staining of the film under these conditions and the absence of alcohol in the bath need scarcely be pointed out. Practically, under these circumstances, the addition of alcohol is right, and theoretically so, too, if it were an advisable thing to accumulate in the bath. There is yet another way, and that is the use of a flat bath-holder, as under these conditions the tendency of the volatile bodies is to leave the surface of the plate at once, and not slowly stream against it, as in the upright holder; for the holder recommended allows the strong silver solution to come immediately in contact with the film. A flat bath-holder has its disadvantages; still, the almost total absence of ether and alcohol in the bath solution is not to be despised.

However, the end in view is accomplished if it have been pointed out what is the cause of a new bath solution not working well at once; and the selection of the remedial measures suggested is left entirely to the practical teaching the photographer may have had.—*The British Journal*.

A FOGGY NEGATIVE—When your sweetheart says "no" when she means "yes".

RE-DEVELOPED—The ladies of the period.

PRINTING DIFFICULTIES.

EDWARD DUNMORE.

No SOONER does the hot weather set in than up crop a variety of difficulties unheard of during the cooler months, and rife are the complaints of bad paper, baths going wrong, and similar troubles. Now, if a sample of paper worked well at one time, it is only reasonable to suppose it would work well at another—say any time within six months of the first trial—presuming it to have been carefully kept in the interim. It is a very different matter knowing that certain effects will probably take place under certain conditions to knowing *why* such effects take place. There is an element of uncertainty in the matter, the removal of which is absolutely necessary to ensure perfect results.

With regard to silver printing. Without any previous indications a sample of paper that has been working as satisfactorily as could be wished for some time commences to give streaky and unrepresentable proofs, and no mode of doctoring or toning seems to set it right. The paper is blamed, and fresh samples are tried, but often with no improved results. New baths are made; still streakiness and spottiness form the order of the day. Then just as suddenly all goes well again, seemingly without any reason, and we are at our wits' end to know where the fault lay.

There are two distinct classes of "mealiness"—under which designation I will place streakiness and spottiness. One class is the result of the toning bath being out of order or unsuitable for the paper to be toned. This occurs at any time and in any weather, and may be distinguished from class No. 2 by the markings being all more or less toned and altered in color from that of the proof as it came from the printing-frame, the lights and shadows being stippled, as it were, one into the other in a very unsightly manner. Few printers are unacquainted with this disease. The other order of mealiness is that portions of the proof refuse to tone, spots and streaks (generally taking the direction in which the albumen was drained off in albumenizing the

paper) appearing, which on careful examination are found of a character entirely different to those produced in the previous case. Until the proof has been submitted to the action of the toning bath the faults are, however, scarcely perceptible. Incipient markings, consisting of more or less depth of color, can, on careful examination, be detected on the surface of the prints, pointing out that the fault, whatever it may be, is not connected with the toning bath. We examine the paper and find nothing apparently wrong; the sensitizing bath is the same as when we obtained good work. Possibly, to make sure, we mix a new one with a reliable sample of silver nitrate; still the faults remain, and day after day during the summer good and bad batches of prints are turned out, alternating in the most provoking manner. It occurs in this wise:—

The extremely delicate layer of chloride of silver formed when the paper is floated on the silver bath is more or less soluble in a strong solution of the silver nitrate, should the temperature rise to 70° or thereabouts, the solubility varying, however, with different samples of papers and the dryness or horniness of the albumen film. This silver salt is removed by solution from the exterior albumen surface—the albumen remaining insoluble, and forming a protective covering to the underlying stratum of chloride, which, although, pervious to light, is impervious to the toning solutions—the consequence is that these protected portions refuse to color, and streaky, spotty proofs are the result. The remedy is obvious:—In hot weather reduce the strength of the silver bath to about thirty or forty grains, and the chloride will remain undissolved and the cure be effected.

It is important that printers should particularly notice the difference in the appearance of this disease from that produced by improper toning. In one case the spots are toned, and in the other not at all unless they have been subjected to the toning for a very protracted period; even then very little alteration in color is perceptible. I am inclined to think that in summer the addition of nitrate

of soda to the silver solution would be generally useful, as I have never found this peculiar streakiness occur when using it. It may either be that the nitrate of soda interferes with the solution of the chlorides, or, more probably, that the use of a weaker solution of silver nitrate was the cause, although the mixed salts were used with quite a different intention—that is, for the sake of economy. During the winter season or cool weather the plain nitrate of silver bath, in my hands, produces better results than a combination of salts, although equally good proofs can be prepared on either bath in warm weather.—*The British Journal*.

On Photographing Crystallizations as seen in the Microscope.

M. J. GIRARD has recently been working on this branch of scientific photography, and, in a note to the French Academy of Sciences, has recounted his experience, which may interest our readers. He operated first on sal ammoniac with an enlargement of twelve diameters, and afterwards on the arborescences of bichromate of potash. It is of advantage to operate by transmitted light, because it is possible thus to obtain a greater intensity of light.

M. Girard made use of an apparatus composed of a metallic slide fixed to a tablet that carried the camera. This slide consisted of different pieces fitting telescopically, so as to be capable of being drawn out with the expansion of the camera. Then there were a lens of about one-third of an inch diameter, and made so as to be able to yield an enlargement of from eight to twelve diameters; a spring clip which supported the objects; the bits of glass upon which the crystals to be photographed were formed, and a strip of glass of a cobalt-blue tint, the object of which is to give a monochromatic light favorable to obtaining a photographic image; together with a plane mirror, movable and capable of reflecting the light parallel to the optical axis.

Exposure varied a good deal, according to the transparency of the crystals, from in-

stantaneity to a duration of two or three minutes. When greater relief is wanted, so as to put the angles of the crystals in more prominence, an oblique light is used, easily got by turning the reflector a little. However without apparent effect in photography the brilliant effects of polarization may be, they allow crystals often to be projected on a black background, thereby adding much to the clearness and delicacy with which their details are rendered. The polarizing apparatus consists of two pieces—the polarizer and the analyzer. The first of these objects is placed before the lens, and the second between the lens and the sensitive plate.

Crystals are prepared for photographing purposes by spreading on a plate some of the saline solution, and allowing it to dry in a perfectly level position, so as to secure evenness of effect. It is well to prepare solutions of different degrees of concentration in order to be able to choose for reproduction those samples which offer the best defined characteristics.

An Optical Delusion.

THE following is an optical delusion which is none the less interesting for being very easily explained:

Let a person standing before a looking-glass look attentively at the reflection of the pupil of one of his eyes, and then at the other; let him look at different parts of the eye, and from one eye to the other, first at one and then at the other. Knowing that thus, in changing the direction of his gaze, his eyes must move about in their sockets, he will expect to see that they do so in the glass. As a fact, they will appear perfectly still. If he looks at the eyes of another person trying the experiment, the peculiar fixedness of his own will be still more striking when he looks at them again. I will not spoil the riddle by giving the answer at the end.—*Nature*.

A REST very many object to—the head rest.

A Few Words About Printing.

THE matter of printing has already been the subject of many an article and discussion, and yet there are some branches of the subject in which we make no progress. Complaints about albumenized paper have not yet ceased. Perhaps the albumenized paper makers themselves will aid us, now that they have given notice of an advance of twenty-five per cent. in their prices, and they will supply us in future with a material which is twenty-five per cent. better. Time will show.

Many a time the question has been asked: Is there no better material than albumen from which a photographic material can be prepared? The number of experiments that have been made to this end are incalculable, and thus we have gelatine paper, amorph-paper, caseine paper, gluten-paper, collodio-chloride paper à la Ost, and collodion paper à la Obernetter, enamel paper, and heaven knows what besides, for in France there are still other sorts manufactured.

Some very beautiful specimens have been secured on these materials, so that it is matter for regret that the experiments have again sunk into oblivion. Some of the papers have peculiar advantages. Such sharply printed pictures as those upon Obernetter's collodio-chloride paper I have never obtained on any other material, and the paper has besides a vigor and depth not possessed by an albumenized surface. It is always a difficulty to obtain a sharp and brilliant picture from a thin negative; but with Obernetter's paper the problem is easily solved.

The doubly coated albumenized paper is now-a-days recommended, the high gloss the paper possesses being due, probably, to the additional coating. This gives brilliant pictures, but not so vigorous as collodion-paper. One of the drawbacks of the latter is, of course, its tendency to break. Ost, however, says that this defect is easily avoided. Certainly the matter deserves a little more trial, for we shall otherwise remain sitting at the silver process for some time to come. Endeavors to bring forward the carbon process

have proved unavailing. The latter was too uncertain, and only answered in the hands of those who were well skilled in its employment. Every photographer is aware of this. Just now the carbon process has been much simplified in England, and it is said to be no more difficult to work than the silver method. Why, then, is it not adopted? On the one hand, probably, there is a lack of operators who understand the process, for the principal himself cannot give up his time to the matter; and on the other, the materials are doubtless too expensive. A sheet of pigmented tissue is said to cost about sixpence. For this money a sensitized sheet of albumenized paper may also be prepared. It is the same with Lichtdruck. Printing in pigments, and with greasy ink, are both very good things, but they do not appear adapted to all of us. Some very nice Lichtdruck prints are produced now-a-days, but every one cannot produce them, and certainly not every printer. I have followed the subject with much interest for some time, but never had time to take the matter in hand myself, for to prepare a Lichtdruck block in order to print off a dozen portraits is scarcely profitable work. The silver process is less troublesome, and gives prints of a finer character.

Despite many efforts on our part, it must be admitted that we have as yet got no farther than the silver printing process. The operations of printing, toning, and fixing are the same to-day as they were sixteen years ago. It may be that we are in a position now to save our silver, for there is now paper already sensitized to be purchased in commerce. I saw some recently made by Talbot, of Berlin. This material is, however, not for the ordinary photographer, but for engineers and builders, for copying their sketches and drawings. The duplicates are printed without lens or negative. The drawing is placed in the printing-frame, then a sheet of the Talbot paper is put upon it, and the frame closed. On exposure to light, the black lines of the drawing keep back the rays, while the white portions allow them to pass, so that a negative on paper is the result. The

process gives quite startling results, and those who doubt it should make the experiment. The paper negative is not toned, but only fixed, and then a positive may be produced from it in the same way. Why do not photographers employ this kind of paper? It is very good, for I have kept a piece of it for six months, and it is still perfectly white. It seems to me, however, that the pictures tone with difficulty; at any rate, my chloride of lime toning bath gives no agreeable results. M. Talbot himself has given no formula for a toning bath, and it would be well for him to do so. To many modest photographers the process would be welcome in case they did not wish to have resort to silver printing; for the employment of albumenized paper brings with it many defects, such as the discoloring of the bath, the dissolving of the albumen, the tinting of the surface on keeping, &c. All these would be overcome by having resort to a paper ready sensitized that would keep well.

I will admit that most of the defects to which I have alluded are easily removed, if one only knows how to go to work. There are, however, many who do not. I am acquainted with printers who put brown baths in the sunshine, or add kaolin to them. Such remedies were good enough when we knew no better, but now they are quite superfluous, since permanganate of potash is used in the studio. Two or three drops of a solution of this useful compound will render a brown bath again clear in an instant. More of the solution must not be added than is necessary; too much is injurious. Another point about which we often hear complaints is the production of weak prints by reason of poverty of the bath. One would think that the argentiometer would indicate when there is too little silver; but, unfortunately, the instrument gives false results by reason of the bath containing other salts than those of silver. The only way of properly controlling is to employ the Vogel silver test. It is, however, seldom used, because many find it too troublesome, and with some people to take things easily is everything.

Acid in the bath is also readily removed. A few drops of carbonate of soda solution is sufficient for the purpose; but how seldom is this simple recipe adopted!—*Photographische Notizen*.

THOUGHTS SUGGESTED BY THE CHICAGO CONVENTION.

Does anything remain to be done to further the interests of photography? We think a great deal. Not, however, in the direction of apparatus; for we believe our optical and mechanical appliances are as nearly perfect as we may ever expect to see them. Neither do we think that much is to be looked for by way of addition to our chemical resources—in the meantime, at least. No doubt in this direction there is yet a wide field open to those who have time, inclination and ability for original research; but the photographer who possesses the knowledge of properly utilizing the material we have, can produce results of the very highest class, both as regards beauty and permanency. One thing we want, then, is the more general spreading of this knowledge of how to make the best use of the material at present available. No doubt photographic societies have done something, and photographic literature has done more, in this direction; but that much yet remains to be done is abundantly proved by the frequent eager inquiries after the special formulæ of successful operators, and the support which seems, even yet, to be given to the dealers in secret nostrums.

The work of the photographic societies, notwithstanding the publicity given to it by the photographic journals, is apt to be but local in its influence. "As iron sharpeneth iron," so does the bringing of men face to face elicit much that might otherwise never have seen the light; and as brilliant sparks are evolved from the flint and steel, so from the personal intercourse of kindred spirits, having similar objects in view, but, perhaps, trying to gain them by different routes, there frequently results much of the highest value

to both, which is too subtle to be caught by the reporter's pen.

That these observations apply to other subjects as well as to photography is shown by the fact that the want has been felt, and, to a large extent, supplied in most other branches of science. In this way have arisen the British Association for the Advancement of Science, the British Medical Association, the Social Science Congress, the Pharmaceutical Conference, and last, though not least, the American Photographic Convention. Whether our own country is ripe for the successful carrying out of such an association, purely devoted to photography, we do not know; but we think it is well worth a fair trial. It has been mooted more than once, but no active steps have as yet been taken to give it the necessary start. It has, no doubt, been urged, by way of objection, that in the British Association we have every necessary opportunity of introducing photographic subjects, and that extremely little of photographic interest has ever been introduced; but we think the argument of comparatively little value, as, in the midst of many subjects necessarily discussed there, photography, almost in consequence of its claims to be regarded as an art, is apt to "go to the wall." In an association, however, devoted almost exclusively to photography, this could not occur; whilst the mere fact of its existence and arrangement to meet in any particular town would create an enthusiasm which could not fail to be of the utmost benefit to all concerned and to the art generally.

We have had some experience of the doings and effect of the Pharmaceutical Conference, and know that previous to its establishment the members of that profession, even those living in the same city, were on little more than "bowing" terms, while of those in other cities they knew nothing, unless, perhaps, the names; and, as a matter of course, the profession itself either stood altogether still or made the slowest possible progress. Now, however, the motto of the pharmacist is "progress." He has seen

and conversed with most of the higher lights of the profession, and finding that they were only men like himself, but who by study and application had gained their envied position, has resolved to go and do likewise, thereby adding greatly to his pleasure and profit. Nor do the benefits end here. It has almost universally been the case that in the various towns in which meetings have been held, the temporary committees have resolved themselves into permanent societies from which much valuable work has emanated, not the least important being the joining of the many units into one harmonious whole, increasing their respect for, and confidence in, each other, giving opportunities of increasing their knowledge by intercommunication, and, what some will consider better still, enabling them to increase their too small fees by, in some cases, fifty per cent.

We do not say that all these benefits would necessarily flow from the institution of such a photographic association, but we are sanguine enough to deem the subject worthy of consideration.

In addition to the more manifest benefits that might be expected to flow from a photographic association of the above character, there are others which may be called collateral that would frequently occur. Of such we have an example in the extracts which we have published from the replies to the request of the editor of *Anthony's Bulletin*, that the successful exhibitors at the Chicago Convention would furnish him with their formulæ and methods of working. Those replies afford an excellent lesson to many who need it much, and we hope they will be profitable to those who are continually running after something new, and who are disposed to put their trust in matter rather than in mind.

Of those extracts which we have published, few indeed of the writers seem to attribute any particular influence to the materials with which they work. Of these one attributes his success to a weak bath of from ten grains, made very acid, and to a chloride instead of

a bromide in his collodion. Another thinks nothing less than a forty-five grain bath will do; while a third, having at the Buffalo Convention "satisfied all thinking minds that colors are of different focal lengths," gives each color "a special lighting and special chemical treatment," in addition to his working in the "steepest skylight in the West" with his "actinic screens."

The skylight of another, if not the steepest, must surely be the highest, as it is thirty-seven feet from the floor, and he produces his fine effects by iodising his collodion to suit the height of his room. The remainder are like the classic knife-grinder—they have "no story to tell," except the oft-told, but by many still doubted, tale—"care and skill," "care, cleanliness, and judgment," "work and experiment," "judgment in lighting, and careful manipulation in the dark room," and, lastly, "with me it is more pleasure to make pictures than to work for money." In this latter statement lies, we think, one of the great secrets of success, and we think, also, that the man who conscientiously so feels and acts will not only produce good work, but will find that good work pays best.—*The British Journal*.

THERE are no less than 28 photographic societies now in existence for aiding progress in the art. Of these there are 11 in America, 8 in Great Britain, 4 in Germany, including the Hamburg and Dresden societies, 2 in France, that of Paris and Marseilles, 1 in Austria, 1 in Holland, and 1 in Bengal. It is difficult to get an accurate statement of the number of members in these societies, but in the principal societies of London, Paris, Berlin and Vienna, the members may be thus roughly put down:—The London Society at the last anniversary numbered 300 members; the Vienna Society has 280 members; the Society for the Advancement of Photography at Berlin has 220, and the sister society in the same capital, 240; the Paris Society has about 200 members; that of Dresden, 90, and that of Hamburg, 30.

On the Method and Chemistry of Applying Albumen as a Substratum.

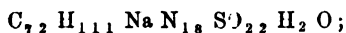
NEVER use a stale egg, but always provide a fresh-laid one. For the purpose you have in view an egg will go a long way, and therefore no trouble should be spared to get a good fresh egg. In our previous article we referred to the marked difference in the white of a fresh egg and a stale one. The egg may practically be divided into five parts: 1. The shell, with which we have nothing to do. 2. A thin membrane (*membrana putaminis*). 3. The white, or the solution of albuminate of sodium. 4. The membrane enclosing the yolk. 5. The yolk itself.

The membrane of the yolk is connected with the cells of the albumen by ligaments which have been called "chalazæ." It also contains a number of small bodies, consisting chiefly of fat. It is the cellular membrane which imparts the ropy character to the white of the egg; and when the egg is well beaten up this forms the flocculent deposit. A stale egg is easily known by the trade method of "candling," or examining by light. New-laid eggs appear semi-transparent, and have a small and perceptible division of the skin from the shell; not so a stale one. It is said, also, that a new-laid egg always feels cold when the larger end is placed against the tongue. Again: when the egg shakes within the shell, condemn it. It is "stale and unprofitable," having lost moisture by diffusion through its porous shell. Therefore, after getting one or two good eggs—do not put too many eggs in one basket or basin—proceed to make your solution in the following manner: Take the white of one egg; glacial acetic acid, 2 fluid drachms; distilled water, 80 fluid ounces. These are to be mixed in the following manner: The white of the egg is to be beaten and blended well with a spoon in the ordinary manner, *secundem artem*, or according to the method adopted by the cook. This process thoroughly breaks up the membrane—

ous cells and sets the albumen at liberty. The two fluid drachms of acetic acid are then to be added and well incorporated by a further whipping; and, lastly, the water is to be gradually added until the whole is thoroughly mixed. At this stage of the proceeding we have a thickish mixture containing a considerable quantity of coagulum: and suspended matter. This coagulum had better be strained from the liquor with the aid of muslin, and then the liquid can be filtered through paper. The resulting solution of albumen is slightly opaque, and it is impossible to filter it perfectly bright; but on standing some time this opacity goes away.

The solution keeps perfectly, and is said to do its work thoroughly, although the quantity of actual covering albumen contained therein is so very small; in fact, it is said that no really practical benefit is found from using strong solutions, and the solution may be diluted to forty ounces. As the white of the egg only contains about twelve per cent. of actual albumen, it follows that each egg containing one and a-half ounces will contain fifty-two grains, and that each quarter of a fluid drachm of the solution (more than what would be used upon a plate) could not contain more than .054 of a grain of albumen; yet this infinitesimal quantity seems to do its work thoroughly. Its action is probably duplex: it acts mechanically and chemically—acts, in fact, as a leveller of inequalities, and also as a detergent.

The condition of the albumen liquor after filtering will be found to be only faintly acid, in spite of the fact that we have used two fluid drachms of acetic acid. Presuming that the albumen in the egg is present as an albuminate of soda, the theory of the celebrated French chemist, Gerhardt, was that there are two albuminates, a neutral and an acid one; that serum and white of egg contain the acid albuminate—

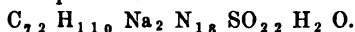


and that this acid albuminate is decomposed by heat into the neutral albuminate and free

albumen, which, being insoluble, separates from the liquid.

We are not prepared to endorse this theory, because from many experiments performed since the days of Gerhardt the action of heat upon solutions of salt is better understood; and what would seem impossible to account for, except in his way and in his day, has now many solutions of the riddle.

The basis for this assumption of the composition of the white of an egg is that when the dried white is examined it is found to contain 1.6 per cent. of soda; theory would require for the acid salt 1.8 per cent. If white of egg or serum be treated with caustic soda, a gelatinous mass is produced which is almost insoluble in cold water. This is supposed to be the neutral albuminate, and contains 3.7 per cent. of soda—



If we view the albumen as an acid, the following represents the composition of the two salts mentioned:



Albumen.



Acid albuminate of sodium (white of egg).



Neutral albuminate of soda (coagulated albumen).

Whether this theory be right or not, it is no doubt a fact that serum or white of egg is faintly alkaline when found in its natural state, and that it becomes much more strongly alkaline after the application of heat or coagulation. The general law governing the application of heat upon all salts when in solution is a tendency to produce a more basic salt and free acid in solution. Here, however, as regards the phenomenon of albumen, it is the reverse.

In making the solution of albumen described, a similar position of affairs would be brought about by the addition of the acetic acid; in other words, we ought to get at the very least acid albuminate of sodium, or the compound should be entirely decomposed. But this reaction is only partial; and it must

be remembered that we have already pointed out that it is held by some experimentalists that albumen, so called, is a mixture of two substances, one soluble in acetic acid and the other coagulated by acetic acid. The solution as made according to our formula would seem to bear out this view.

The process given above furnishes a solution which shows no sign of albumen on boiling; but this bright solution is at once coagulated by nitric acid, and when exactly neutralized by ammonia and boiled, gives a copious indication of that substance. An ounce of the bright solution gave, on estimating it quantitatively, .84 of a grain, and as one egg had been used to the thirty ounces of solution, this represented 25.2 grains of albumen as being present still in solution, or almost exactly one-half of the entire albumen originally present.

The point worthy of observation is the extraordinarily small amount that will do its work; but thus, as an outside calculation, if one fluid drachm will do four ordinary plates, there will only be 0.27 grain of albumen on the acetic acid plate, and 0.54 grain on the plate prepared by ammonio-albumen solution.

THE AMMONIA-NITRATE OF SILVER BATH.

We think a few words on the use of the ammonia-nitrate of silver bath for sensitizing paper may form a somewhat useful sequel to our recent articles on fuming and the *rationale* thereof. We know that at the present time there is much more attention given to the process of printing than formerly; but an examination of any average collection of miscellaneous photographs will furnish abundant evidence that there are still many who think that all their care and attention should be given to the production of the negative, and that the mere mechanical printing may be trusted to anybody. It is, doubtless, true that the first requisite is a good negative; but it is as undisputable a fact that much more than a mere me-

chanic is required to bring out in printing the full qualities of such a negative.

The production of a first class print is the result of a happy union of the mechanical and the chemical elements, and can only be achieved by those who, having a thorough appreciation of the importance of their work, make every separate negative an object of study, and consider no necessary time mispent in the attainment of the desired goal. Without in the least degree undervaluing the importance of the many mechanical dodges which the experienced printer is able to bring to bear on his work, we have no hesitation in saying that he never can give too much attention to the color and brilliancy of the finished print, and it is this color and brilliancy that we especially have in view in the present article.

From a very extensive series of experiments, as well as from the opinions of many who regularly fume their paper, we are satisfied that by the use of ammonia both time and silver may be largely saved; and we are equally certain that we somewhat understate the matter in simply saying that the prints so produced are at least equal in every good quality to those made with a larger expenditure of both, but without the fuming. It is, however, no doubt true that there are many operators who, for various reasons, will not take kindly to fuming their paper. Some are afraid of the effect of the ammonia on the material in the laboratory; others think that they have not sufficient convenience in the limited accommodation at their disposal; while several with whom we are acquainted have given it up after a very imperfect trial, forgetting that even such a simple operation requires for its proper management a little experience. To all such we would recommend a trial of the ammonia-nitrate bath, which may possibly be found to give all the advantages of the fuming without any of its actual or supposed faults.

Those of our readers whose memory extends to the times before the introduction of albumenized paper will remember the beau-

tiful, velvety tones produced on plain paper by the use of the ammonia-nitrate of silver, and the many, but generally unsuccessful, attempts that were made to apply it to the albumenized surface—attempts which generally resulted in the solution of the albumen, in consequence of its not being coagulable by the ammonia-nitrate. This difficulty, however, seems to be obviated by the addition of alcohol to the bath; and, if we may judge from such experiences as we have made, we think all the advantages of fuming, and several others besides, may be found in the use of the ammonia-nitrate solution.

Our attention was recently directed to the subject by the examination of a series of fine pictures shown to us by Mr. Henderson, of Montreal, during a recent visit. In addition to high pictorial qualities they possessed, in a high degree, the rich, brilliant, warm, purple-brown color so generally admired, with a depth not often seen except on very highly-glazed surfaces. On inquiring into the method of their production, he stated that he had used an ammonia-nitrate bath, containing from twenty to twenty-five per cent. of alcohol, for many years, and had found it to answer his purpose so well that he was not likely to change it for any other; for he said that, in addition to the brilliant, beautiful tones which it enabled him to produce, it possessed many other valuable qualities. For example: he found the coagulation of the albumen to be so complete that, although the bath was in almost constant use from January to December, it remained perfectly colorless, and so he was saved the necessity of repeated filtrations, decoloration by kaolin, &c. That, in fact, the bath at present in use in his establishment was at least six years old, and that it was kept in perfect order by the simple addition, from time to time as it became low, of a little freshly-made ammonia-nitrate and alcohol.

Acting on his suggestion we tried the following experiment:—We dissolved 800 grains of nitrate of silver in ten ounces of water, and then added carefully, especially

towards the close of the operation, sufficient dilute ammonia—a mixture of one part of stronger ammonia and two parts of water—to dissolve the precipitate at first thrown down. The solution, which now contained a little over seventy grains to the ounce, was brushed over a piece of albumenized paper; but in a short time the surface got dull, and it was evident that the albumen was becoming dissolved, and to such an extent was this the case that an attempt to produce a print on it resulted in the production of a patchy, irregular surface, utterly useless for all practical purposes. To the solution was then added five ounces of alcohol, *s. g.* 0.840, and the bulk made up with water to twenty ounces, so that the strength was forty grains per ounce. Paper floated on this for three minutes lost none of its brilliancy, and when exposed under a negative, along with two samples—one sensitized on a sixty-grain bath simply, and one on a thirty-five grain—and afterwards fumed, it was printed in quite a third less time than the first, and very nearly as quickly as the latter, while the tone was decidedly better than either. We have only sensitized three or four sheets as yet, and so cannot say much as to the tendency to remain colorless; but we shall use it regularly for some time and report the results.

The proposition to use alcohol in the sensitizing bath has been often made, and as often discouraged on account of the fancied expense; but that objection has really little weight, as the additional cost is only about tenpence per pint, and even that may be reduced to twopence by the use of methylated spirit, although the organic impurities which it generally contains combine with the silver, producing slight discoloration, but not in any way affecting the result.

A CRACKED NEGATIVE, or one having bubbles in the glass, is best printed under ground glass in direct sunlight.

IN what form is pain felt less? Chloroform.

Sensitizing Gelatin Paper.

THIS is accomplished in a solution of one part bichromate of potash in twenty parts of water. The purer the bichromate salt, the better the paper. If small sheets of eighteen to twenty square inches are to be sensitized, the above solution is poured into a zinc or porcelain dish, the bottom of which should be covered to the depth of half an inch at least. The gelatin paper is dipped into the solution and left there until it gets soft, which generally takes thirty to forty seconds. It is then taken out and laid, gelatin side down, on a well cleaned glass plate. By rubbing with a piece of india rubber, not too hard, the greater part of the liquid is removed from the paper. On lifting the paper from the glass, it has a fine, smooth surface, on which there will be no streaks or drops formed afterward, as it is already half dry. It is then hung, on laths provided with pegs, to dry. Thus prepared, it will bear a much higher temperature than when the solution is not pressed out. In cold weather, the paper can remain some minutes in the chromate bath; it should be left there until soft and pliable.

In preparing large sheets, another method must be employed. A sufficient number of thin strips of pine wood, three fourths of an inch wide and long enough to rest on the opposite side of the dish, are saturated with shellac varnish, and, when dry, rubbed with cocoa butter, and then polish with an old linen rag. Horizontal sticks are put up in the preparation room with notches to receive these strips. The dish for a large chromate bath is best made of stout zinc. A sheet of gelatin paper is allowed to float on the bath, gelatin side down, until soft, when one end is lifted up and laid on one of the pine strips; another strip is laid on the paper, and the two clamped together. The paper is then drawn, face down, over a glass rod or tube fastened to one side of the dish. In this way small air bubbles are removed, as well as a large portion of the solution. The paper is now hung up by placing the strips

of wood clamped to it in the notches on the horizontal sticks. A third strip is pressed gently against the back of the paper just below the others, and drawn down to the lower edge, thus partially removing the solution from the back. It is then clamped to the lower edge. In this manner, says *The Photographische Archiv*, a sheet of paper five feet long may be sensitized in less time than it takes to describe it. The chromate bath should be kept covered to keep out the dust; and before using it, a piece of blotting paper may be drawn over the surface.

Preparation of Ether.

O. SUSSENGUTH.

THE most efficacious process is to heat to 140° a mixture of 9 parts sulphuric acid at 66° B, and 5 of 90 per cent. alcohol, alcohol being allowed to run in so that the level remains constant. By direct firing the vessel is apt to be destroyed, and accidents are rendered likely through the inflammability and volatility of the ether; superheated steam is far more safe as a means of heating, though a little more costly. Iron vessels lined with lead appear to be preferable to copper or lead lined copper vessels. When the operation is properly conducted, 66 per cent. of ether (sp. gr. 0.73) is obtained. For 100 lbs. of ether, $\frac{1}{2}$ lb. sulphuric acid is required. The crude ether is washed with water and rectified. This washing and rectification may, however, be dispensed with by passing the vapors first through a jacketed receiver, the jacket of which contains water at about 35° (alcohol and water condensed in this, but not ether), and next through purifiers containing lumps of quick lime and trays of charcoal or coke soaked in caustic soda and well dried, whereby sulphur dioxide is removed. The purification simultaneously with the preparation is, however, open to several practical objections. The conditions of success and of a good yield consist in keeping the temperature constant, and the flow of alcohol regular.

RETOUCHING NEGATIVES.

THE practice of working upon the negative with pencil or water-colors, for the double purpose of ameliorating natural defects—such as freckles, scars, &c.—in the model, and of removing accidental or inevitable defects in the photograph, has acquired of late such general recognition as a necessary part of the operations of successful portraiture, that the photographer who refrains from it is in danger of failing to gratify a portion of his patrons, especially that large section who prefer a likeness to look smoothly pretty rather than sternly true. It is not important to discuss the legitimacy of such a process here. It is only necessary to say that if the manipulation on the negative by the pencil be carried to such an extent as to destroy natural characteristics, it is clearly wrong; whilst if it only repair the evil effects of bad lighting, or soften freckles, scars, or asperities in the texture of the skin, whilst retaining the true character of the likeness, the public will generally prefer the result to that in which the accidental defects, of the model are exaggerated by the faults of a similar character in the photograph.

We would enjoin on the photographer attempting the modification of negatives the important maxim, never attempt too much. Photographic defects—such as pinholes and stains—must, of course, be removed; but in dealing with freckles, wrinkles, and other natural markings, the aim should be to ameliorate, but not to erase. Let the truth always be indicated; tenderly, if necessary, but let it be retained.

There are various modes of retouching the negative, but that most generally practiced—because easiest and most efficient—is the method in which a suitable lead-pencil is used. It is necessary, in the first place, to secure a surface possessing a suitable “tooth” to permit firmness of touch. This may be secured in several ways. A very simple plan consists in giving the negative a final coating before drying, after fixing and wash-

ing, of a ten-grain solution of gum arabic. Upon this surface, when dry, the pencil bites well; and when the retouching is completed, the surface may be varnished without risk of removing the pencil marks. Another method consists in varnishing the negative with a thin spirit varnish, warming the plate before applying it, but not applying further heat after the varnish is poured on. This varnish dries with a sufficiently mat surface to enable the artist to work upon it with a pencil easily. It is also a good protection to the negative without further varnish. With care it may be varnished with a negative varnish, if desired, but there is occasionally a slight chance of disturbing the pencil markings before applied. Some of the mat varnishes in the market give an excellent tooth.

Some of the German retouchers use an ordinary strong spirit varnish, drying with a glossy surface. To secure a tooth for pencil work, they apply *very fine pumice-stone powder*, or cuttle-fish bone, rubbed on the varnish with the finger end until it is just sufficiently roughened to give a tooth for pencil work, just in the part where retouching is required.

The pencils most suitable for the work which we have tried are Faber's H, HH, HHH, and sometimes HHHH; one of each, for different kinds of work and different kinds of surface, being desirable. They should be brought to a fine point, and worked with a light, careful touch to avoid risk, by carelessness, of cutting or scratching the surface. It is well to try each pencil before applying it to the negative, in order to ascertain that no chance grittiness exists in the point.

Besides the pencils, black-lead in powder, to be applied by means of a leather stump, is often found useful, especially for clouds in landscapes, and for modifying backgrounds. Ordinary water-colors may be employed if the artist have sufficient skill to use them efficiently. In any case, water-color is best for stopping pinholes and similar defects. Payne's grey is a very useful pigment for

retouching. A retouching frame permitting the light to pass through the negative is a necessary adjunct to the work.

It is desirable that one proof should be taken from the negative and placed beside the artist, in order that, by examining its shortcomings, he may the better supply what is lacking. Until he is quite used to the work, the artist must accustom himself to a constant recognition of the fact that every touch of black he puts upon the negative means a touch of white in the print. Where he sees a light lacking in the print beside him, he applies a dark touch on the negative; where a wrinkle, a line, or a freckle is unpleasantly pronounced, and looks black in the print, there he puts a touch of black in the negative. But his great aim is not to do too much; each touch must be delicately applied, and not exceed in the space it covers the size of the spot to be erased or softened. And the artist must remember that his aim should be rather to soften than remove defects. The hard line, scar or wrinkle are characteristics of the face; and the object is not to remove all indication of their existence, but to soften and destroy the exaggerated effect which simple photography often gives to them. Especially must the artist be careful not to alter the forms of shadows upon which the drawing of the face depends. A primary aim should be, neither to remove absolutely anything which the drawing of the photograph presents, nor to add anything absolutely new of which indications are not found in the negative. Lights which are not sufficiently pronounced may be increased; detail in shadows indicated in the negative, but insufficiently strong to print, may be strengthened; black shadows, deep lines, hard wrinkles and scars may be softened; freckles may, perhaps, be entirely removed, but nothing else. The best negatives for retouching are those which have received sufficient exposure, every detail being indicated; but, from under-development, all may be a little wanting in intensity. Such a negative may be made to produce good results. Over-

intensified negatives can rarely be much improved by retouching, the object of which is to increase opacity where it is lacking; transparency in the negative, which means greys or blacks in the print, cannot be communicated.

The artist will endeavor, in applying his touches, to follow the form of the muscles, as in hatching and stippling with water-colors, or using the crayon in chalk drawing. The greater his skill in drawing, the greater will be his success. A little practice will be required, and careful thought, to understand the characteristics of the negative, and the end in view in adding touches. Let us suppose a negative ready for retouching. It is fully exposed, but lacks intensity, and prints flat and tame. First begin by putting in opaque touches for the lights, noting carefully how the light has fallen on the model, so as to place the high lights in their proper place on the forehead, nose, chin, and cheek bone. Next strengthen the detail in the shadows and the reflected lights, softening this work, if necessary, with the stump, so as to blend them, but not too intimately, with the high lights. Now soften the lines about the eyes, the corners of the mouth, and those lines of the cheek which lead to the mouth. Then remove freckles, taking care not to make the applied touch more opaque than the parts adjoining; otherwise white spots will appear in the print, rendering touching-out in the print necessary. The retoucher should always aim to avoid putting any touches in the negative which will require modification in the print. The hair may frequently be improved by applying a few sharp touches to the lights, following the lines of the locks carefully. Masses of deep shadow may often be beneficially modified by touching the negative at the back with water-color, and, as the thickness of the glass will soften the touches in printing them, may be somewhat roughly applied.

If it be intended that the negative shall be varnished after retouching, a proof should be taken before the varnish is applied, so that

any further touching or modification of that already applied may be more effectually managed than it could be after varnishing.—*Photo. News.*

NOTE.—We should recommend varnishing the negatives *before* retouching with either Grit or Morgeneier's Varnish, either of which give an excellent tooth for the pencil to work upon.

A FEW HINTS ON POSING.

ARTHUR JAMES MELHUISE.

MUCH experience has convinced me that the principal, if not the only thing in which an eminent portrait photographer, like the late Mr. Williams, differs from others is in the art of posing. Twelve years ago I used the same chemicals and formula as I do now, the only improvement I have made being in posing, and in this respect I am still a learner. Then I thought myself pretty well perfect, now I have a much more modest estimate of my abilities. I have learned much, but know that I have more yet to learn; and if by chance one of my early triumphs crops up, I behold it with dismay, and hurry it out of sight. I profess to offer but "a few hints on posing," for to give a comprehensive view of the subject would fill a volume rather than a page. I will confine my remarks this year to the vignette head, and should another year still find me at my post, I may have something to say about the standing portrait. If in my desire to be concise I appear abrupt, practicable photographers will, I am sure, excuse it.

The first thing to be done is to notice which is the better side of the face, as the two sides almost invariably differ, the difference being sometimes in the eyes, but generally in the nose, the outline of which is often quite different when seen from opposite sides. A few years of experience will enable one to see at a glance the most favorable side. Moles, scars, and the like, are not of much importance, as they can be easily touched out in the negative. The next thing is to observe

whether it is a face that is better when looking up, down, or straight-forward. Here, again, the nose is the feature to be most looked after. A hanging hooked nose if taken with the head bent down, will almost reach to the mouth, whilst the "turn up" shows to most advantage in that position. When the side face is good it should always be taken, as most persons are proud of a good profile. Great staring eyes *must* look more or less down, whilst small eyes are better looking up. Gentlemen with retreating foreheads generally seem to think that the great thing is to throw back their head as much as possible—that, in fact, it looks dignified; but if one gently remind this class of sitter that it makes them look all chin and no forehead, the artist will have no further trouble on this point, except it be to avoid the opposite extreme. Having judiciously posed the head, the last thing to be attended to is the expression, and this is the most important of all, and requires tact as well as knowledge. Some put on a vacant stare, others compress their lips, fix their eyes, hold their breath, and look as though they were undergoing an operation. Tell them to smile, and they look idiotic; therefore, I say it is here that *tact* is required, and this, of all things, is the most difficult to impart to others. There are some simple directions, however, which can be easily followed: Having informed the sitter that the eyes not only may, but should be winked as often as convenient, see that the lips are closed without being compressed. Sometimes, with a bright, expressive female face, the lips may be parted, especially in children, but this is rarely the case. Now, to get the right expression, if sitters put on "the agony look" or "the vacant stare," they must be *talked* to until a bright natural expression is assumed; then, and *not till then*, the plate may be exposed.

Should any think the above directions too precise, I can merely say that my experience has taught me that probable failure will result from the neglect of any one of them.—*Photo. News Almanac.*

TAKING A PHOTOGRAPH.

A. D. MANN.

He was a very pleasant spoken man that photographer. He said it was a nice day, and that we needed a little rain, and that the Hanley dog-fight was a bad thing, and that photographs were 18s per dozen—no orders booked without the cash in advance. He wanted to know if I wanted full-length, half-length, bust, face, or what. I told him "or what," and he yanked his camera around, flung the big screen recklessly about, poked the skylight curtains this way and that with a long stick, and then he ordered me to sit down. "There—that way!" he said, as he jerked my body to the left and squinted at me. "A trifle more!" he said, giving me another j-rk. Then he stepped back, closed the right eye, and squinted again. "Shoulders up!" he said as he gave them a twist which made the blades crack. Then he went to the left and squinted, and cried "Ha!" and went to the right and squinted, and shouted "Um!" and he came back, seized my head, and jerked it up until I saw stars. "That's better!" he said, as he walked back to the camera. But it wasn't. He came back and told me to twist my right shoulder round, hump up my back, swell out my chest, and look straight at a butterfly pinned to a cigar-box, and be as pleasant as I could. "Capital!" he cried, as he took a squint through the camera, "only——" and he rushed back, jerked my head a little higher, pulled my ears back, brushed up my hair, and said I'd better try to smile and look natural. "How the ——" I began, but he waved his hand, and said I must preserve my placid demeanor. "Now sit perfectly still and don't move a hair," he whispered; as he threw a black cloth over the brass-bound end of the camera, and made a sudden dive into his little dark den. As he rattled the glass and dashed the acid about I felt a big pain in my spine, a small pain in my chest, another in my neck, and another in my ribs, but I said I'd die first, and I kept my gaze on that butterfly. "Ready

now!" he cried as he jumped up and put in the glass. My head began to boil, and the butterfly seemed to grow as large as a horse, and he whispered—"Look out—keep perfectly still!" I braced for a big effort, and he jerked down the cloth. I felt as if the fate of a nation rested upon my shoulders, and I stuck to it. He turned away, and I heard him talking softly to himself. After about an hour and a-half he put up the rag, jerked out the glass, and ran into the den. He was out in a moment, and, as he held the negative up to the sun, he said—"Ah! you bobbed your head; have to try it again!"

Charles Dickens.

THE life of the late Charles Dickens teems with interest; his death gives a most salutary lesson to all who get their bread by the labor of their brains. An eminent medical writer gives a short summary of the various shocks to the system of Dickens, which naturally weakened him and predisposed his frame to affliction, and gives the most conclusive evidence that paralysis, which ended the great novelist's earthly career, was due almost exclusively to that very act of his life which drew admiring thousands to listen to the delineations in person of the leading characters of his published works. On leaving the platform after reading "Copperfield," so laborious, earnest and pathetic were the exertions made by Dickens, his whole soul being thrown into the work, that the pulsations of his heart numbered 96, being 24 in excess of the ordinary pulse, 72; after "Marigold," 99; "Sikes and Nancy," 118; "Oliver Twist," 124. Thus while his audiences were rejoicing over talented histrionic display, the efforts of the reader were driving nails into his coffin, breaking down the delicate wall of the nervous system of the brain, flooding that great organ with an inundation of fluid which doomed the birthplace of Pickwick and a host of other interesting characters of English fictitious history.

VENTILATION is the soul of health.

FOREIGN NOTES.



IN an able article on "Fires at Photographic Establishments," *The British Journal of Photography* refers to the causes for combustion in chemicals, &c., and to the exposed situations of skylights and operating rooms, which are frequently built upon roofs, and suggests the use of a solution of tungstate of soda as a fireproof coating or steeping for wood. This would be useful about solar cameras, gas stoves, lamps, &c., and costs but little.

MR. THOMAS SUTTON, B. A., the distinguished correspondent of *The British Journal*, is about to leave France, or has already done so, after a long residence. It is to be hoped that change of location will in no way affect his interest and experiments in the art.

THERE has been a large seizure in France of "invisible" photographs of the Prince Imperial. The Parisian police are equal even to invisible Bonapartism.

REFERENCE is made in *The Photographic News* to the subject of mechanical grain in prints and the methods for producing it. There certainly may be something done in this way to improve our pictures, those of large size especially. A fine head—say of five inches in length, with the stippled or lined appearance of an engraving, would certainly be more striking and more artistic than a solid mass of shadows. A help to retouching might be done in this manner by

the superposition of some thin medium, stippled or dotted.

THE practice of registering or copyrighting portraits is becoming daily more common, and is really a good protection against fraud. In this country it costs but one dollar, and should be resorted to for valuable negatives.

DR MONCHHOVEN and Dr. Vogel are deep in controversy in regard to the actinic powers of the different rays of the spectrum. "When doctors disagree, who shall decide?"

ACCORDING to Dingler's *Polytechnisches Journal*, if a sheet of paper be immersed in an ammoniacal solution of copper (liqueur de schweitzer), prepared by treating copper filings with ammonia of 0.880 density, in contact with air, the paper becomes entirely impermeable to water, and maintains its consistency even under the influence of boiling water. When two sheets of paper thus prepared are passed together through rollers, they adhere completely to each other; and by placing a number of such sheets together, board of great solidity is obtained, which may be still further strengthened by the interposition of fibres or tissues between the sheets. Boards thus formed are quite equal to wood in solidity.

The Photographisches Archiv gives some notes, by Herr Klinger, on the intensification of negatives by after-lighting which are of interest. He states that he never intensifies

his negatives with chemicals at all, but reaches the desired end in a purely mechanical fashion. His operation is of the simplest possible kind. When a negative is very thin he takes it and washes it first with common and then with distilled water. It is then dried upon the back with blotting-paper, and placed with the film side still wet out into the direct sunlight under another glass of a slightly yellow color. As soon as the negative has become dry in this position it should be examined to see whether it has become sufficiently dense. If not, it is allowed to stay for some time longer until the desired blackness is reached. When it has become of a suitable density the negative is taken in and fixed. The results of this method are said to be very good, with the exception, however, of under-exposed negatives. But it is of the highest importance that both the back of the negative and the yellow glass placed in front of it should be perfectly clean.

REFERRING to the preparation of chrome alum, *Les Mondes* says:—"The usual method is to dissolve bichromate of potash in sulphuric acid, and reduce by alcohol, or a current of sulphurous acid, and to avoid all elevations of temperature. A new method is to reduce by oxalic acid, and for 100 parts of chrome alum there are used 39 of concentrated sulphuric acid, 29.5 of bichromate of potash, and 88 parts of oxalic acid."

The South London Press says:—"A stout old woman got vexed the other day because a photographer wouldn't let her fan herself while she had her picture taken."

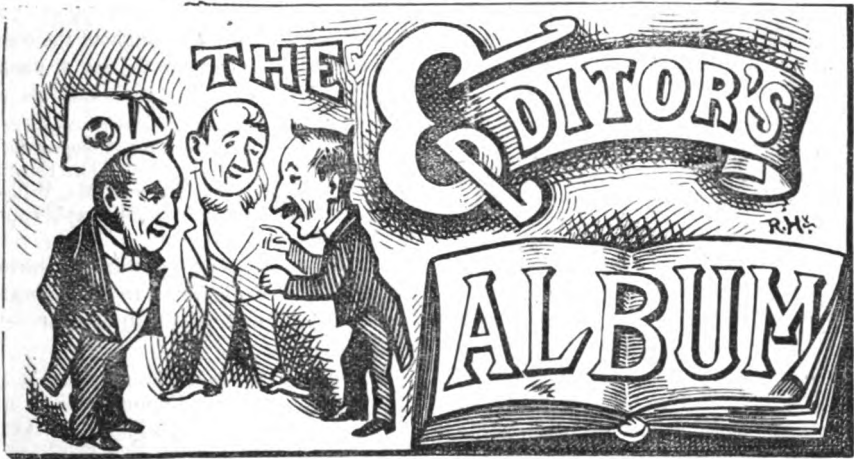
A NOVEL kind of camera has just been brought out by M. Carotte, of the Rue d'Enghein, which he calls the "scenographic camera," or "scenograph." It has the shape, and is much the size, of an ordinary stereoscope, and is composed of two frames, of which the one carries the objective, and the other the slide with the plates, and which are joined by a sort of sack, made of black or green cloth. This, of course, admits of considerable expansion, although taking up, it may be said, no room at all, and the whole

thing folds up and goes into a box of a few inches square. The tripod forms, when doubled up singly, an ordinary cane. The instrument is, of course, destined for the dry process, and is an embodiment of the same idea that Messrs. Negretti and Zambra carried out in their pocket camera.

The Photographic News gives a long "resume" upon our Photographic Brochure, a book prepared and issued by R. Walzl for the instruction of patrons of the art. A very favorable comparison is made of this work and a similar one of Robinson & Cherrill's, our work being thought to come nearer the purpose sought.

A CORRESPONDENT of *Photographisches Archiv*, who has been journeying in France lately, says that the practice of pre-lighting the plate with a view to shorten exposure is considerably in vogue there. He was assured that the practice was attended with the best effect, and that it was possible frequently to shorten exposures by one-half through the system employed. It was very simple, not differing much from those already described through these columns. A circular hole is cut in the middle of the cover of the lens of about two-thirds the diameter of the lens in size, so that a three-inch lens would have a two-inch aperture on its lid. This aperture is filled with an opal glass, and, when the plate is ready, the front slide is drawn up and its surface exposed to the diffused light for a couple of seconds before the cap is withdrawn, and the sitter's image allowed to impinge upon the film. This pre-lighting is said to shorten the exposure by about one-half—a subject which, in an ordinary case, would require twenty-four seconds' exposure, for instance, doing with fourteen.

ACCORDING to the new year-book of Dr. Hornig there are one hundred and four photographers in Vienna doing business on their own account, while the number in Berlin is two hundred and seventeen. The inhabitants of the two cities are about equal in number, so that the position of Vienna would appear to be a very backward one compared with that of the sister metropolis.



WE have to record the sad intelligence of the death of Mr. Jacob Barhydt, of Rochester, N. Y., who died on the 30th of September, after a sickness of only a few hours. Mr. Barhydt was esteemed by all who knew him as a gentleman and an excellent photographer. His work was regarded as among the very best, and a beautiful example of it illustrated our January number, as will be remembered by our subscribers. We extend to his surviving relatives our heartfelt sympathy.

Our genial correspondent in England, Mr. Wm. Heighway, has changed his address to 54 great Ormond street, W. C., London, England. We must take this occasion to thank Mr. Heighway for his most excellent contributions to our columns. They have been read with the utmost favor, and copied extensively at home and abroad.

MR. FRANK A. KRONEBERGER, of Philadelphia, sends us some more fine pictures and an excellent one of himself, for which he has our thanks. We are always glad to receive portraits of our friends.

WE have received an excellent cabinet from Mr. Monroe W. Neihart, Franklin Centre, Iowa, who has been only eighteen months in the business and is capable of

making a first-class Rembrandt. He says he owes all his knowledge to THE FRIEND; and that he is now able to return information, his instructive article in this number will show. The ferrotype he also sends us is a good specimen of clean manipulation.

TWO CARDS of children which have reached us from R. E. Atkinson, of Palmyra, N. Y., speak volumes for that gentleman's lighting, and show a peculiar aptitude for children's pictures.

MR. A. H. HALL, of Chatsworth, Ill., sends us a view of a smashed railway locomotive which had tried "telescoping." This excellent photograph shows plainly that "two trains cannot pass each other on the same track."

BUSINESS is getting better—so come reports from the front—and photographers may hope to do some business this winter after all. "When it comes to the worst it always mends."

NOW IS THE TIME for photographers to renovate their show-cases and put their best foot foremost for the holidays. A good attractive show helps wonderfully, and a clean doorway is a fair index of the whole gallery.

OUR notice of *The Western Photographic News* was inadvertently omitted in our last

issue. We beg pardon, and can add our testimony to the rest as to its useful readable qualities. It is a sprightly journal, which suits the great West.

CHICAGO has had its yearly Exposition this fall, and the photographers, as usual, made a fine show. There is a vim and push about the photographers of that city that almost make us envy them, and they have a well sustained Society that is something always productive of good.

AN excellent way of packing negatives for sending or carrying away is to put a small rubber band over the end of every other one when putting them together.

A REACTION is setting in on the retouching question, and excessive smoothness is beginning to be avoided. There is no doubt that the matter will come to be considered in its right light, and retouching be regarded as only a helper to remove imperfections, and no more.

AMONG the other things that did not pay at the Vienna Exposition was photography. The parties who undertook the contract for the exhibition were subject to much vexation and loss, owing to improper regulations on the part of the authorities.

RETOUCHING at night may be performed without hurting the eyes, if a blue glass shade be used between the operator and the light; or an excellent light can be made by filling a globe with a light blue solution, say cyanide and iron, and using that to cut off the harsh light and heat rays.

A COMPETENT OPERATOR, experienced in all branches, wishes a permanent situation. First-class references and specimens. Address, F. WALLER, care R. Walzl, 46 N. Charles street, Baltimore, Md.

MR. EDWARD L. WILSON, the editor and publisher of *The Philadelphia Photographer*, and the successor to THE PHOTOGRAPHER'S FRIEND, has now the only regular photographic publishing house in the United States, and we trust that all of the subscribers to THE FRIEND will extend to him their patronage in the all important matter of photographic literature. Encourage his enterprise; fill up

the accompanying order sheets and send them on to Mr. Wilson, who will in the future, as in the past, strive to merit the support of all earnest photographers throughout the country in his efforts to elevate the art of photography. Mr. Wilson has expressed his intention to merge THE PHOTOGRAPHER'S FRIEND into *The Philadelphia Photographer*; consequently, after this number THE FRIEND ceases to exist as a journal, and Mr. Wilson becomes the only exclusive photographic publisher in the United States.

WE feel it our duty to insert in our Drawer the following card from Dr. Woodward, whom we hope will soon drift clear of "the shadows of adversity:"

For sale at a great sacrifice, my patent on photot tent and trunk. Hoping to save my life, my home and my family from great suffering, induces me to make this effort, as I am now imprisoned and forced to suffering and want. Address, with stamp for a circular,

J. FLETCH WOODWARD,
27 North Front street,
Nashville, Tenn.

WE publish with sincere regret the following communication from Mr. J. B. Webster, one of our most valued contributors, and a man who has made an honorable name in the world as a photographer. In his deep affliction Mr. Webster has our sympathy, in which we know we will be joined by the entire profession:

LOUISVILLE, October 28, 1874.

Editor Photographer's Friend.

DEAR SIR:—I again feel myself under the painful necessity of informing you and the photographic community at large of my severe affliction, which is caused by the sudden death of my eldest son, Eugene, twenty-four years of age. He was drowned on the evening of the 10th of October while crossing the Ohio river, one hundred miles below here, in a skiff with two companions. He was a photographer, and in business at Cloverpoint, in this State, at the time of the sad occurrence. He was a promising young man and possessed many noble traits, being a leading member of his Sunday school (M. E. Church) and the choir. His body was found about forty hours after the accident. Having taken the first steamer down the river, I brought the body immediately to the city for interment in my family burying-ground. With kindest regards for the management and success to THE FRIEND, I remain

Truly yours, J. B. WEBSTER.

THE Photographic Times.

Vol. IV.

JANUARY, 1874.

No. 37.


Entered according to Act of Congress, in the year 1874,
By THE SCOVILL MANUFACTURING CO.,
In the Office of the Librarian of Congress, at Washington, D. C.


SCOVILL MANUFACTURING CO., PUBLISHERS, 4 BEEKMAN ST., NEW YORK.

REMOVAL.

IF our readers discover any shortcomings in the *Times* this month, it is owing to the fact that it was prepared during the hurry and confusion incident upon the removal of our stock to our new establishment, No. 419 and 421 Broome Street, near Broadway.

Want of room and the march of trade to the upper portion of the city, have compelled us to vacate our old quarters, where we have been so many years, and where we have grown and advanced with the growth and advance of photography. But we have no regrets on the subject. We are going to more convenient and much more elegant and spacious quarters, and before the 15th proximo we hope to be in full operation there. After we are settled and fixed we shall have more to say on the subject. We shall not say more now, lest we say too much—for we do not know ourselves how we shall look until we are fixed—except that pending our next issue, we invite you one and all to come and see us, and the finest display of photographic goods in the whole world.

 Nos. 419 and 421 Broome Street.


Ask for Scovill's Union Goods, and
other articles.

EXAMINE BOWDISH'S BALANCE CAMERA STAND.

THE NATIONAL PHOTOGRAPHIC ASSOCIATION.

AT the last meeting of the Executive Committee of the National Photographic Association, the subject of relief for the treasury was brought before that body, and anxiously discussed.

We have always had pleasure in helping the photographers and the Association in emergencies like this, and are willing to do so now. Moreover, we believe that every dealer and manufacturer of photographic goods will help to place the Association again upon a working basis financially. The interests of the dealer and the photographer are identical, and this Association is doing too much good to allow it to languish.

Now the crash is over we trust *everybody* will put a shoulder to the wheel, and we hope to be able to announce in our next the entire relief of the treasury, and that free from debt the Association to a man will be preparing and hurrahing for Chicago.

MEDALS AT VIENNA.

IT is a matter for congratulation to photographers that of the extremely small number of medals awarded at the Vienna Exhibition for "good taste," three were

awarded to photographers. We have not seen the names of Continental medalists, and are uncertain whether any Continental photographer received one for good taste. Of the still smaller number of large medals, for "extraordinary industrial merit," one was awarded to the Scovill Manufacturing Company, of New York, probably the largest manufacturers of photographic materials in the world. The excellence of their manufactures is matter of general notoriety.—*Photo. News.*

THE STEPHENS VISE.

ALREADY we have received several orders for this most useful and excellent article, although we have not had the agency for a month yet. It is very gratifying to observe the expressions of wonder and satisfaction which steal over the countenances of persons who examine this vise for the first time. "Well, there," says one, "that is the simplest and best thing I ever saw. Why was it never thought of before, I wonder." And so they all say in substance. For the benefit of those who have never seen the vise, we have inserted this cut, which shows the vise



with swivel attachment. The swivel attachment is common to all these vises, by means of which they can be turned laterally in either direction. The *taper attachment* for holding any kind of bevel, taper or irregular work, can be adjusted or removed instantly.

Jeweller's vises have also a *table vise-clamp*, by which they may be fastened firmly to a finely finished table without marring it in the least. For price of all sizes, see advertisement on another page.

OUR SUCCESSFUL EXHIBITORS AT VIENNA.

"IN this issue we submit for the consideration of our readers some interesting facts connected with the fine arts, &c.

"AMERICAN OPTICAL CO. APPARATUS, Scovill Manufacturing Co., Proprietors, 4 Beekman Street, New York, were awarded the *highest* medal for extraordinary industrial merit for their magnificent display of photographic apparatus, consisting of camera boxes, camera stands, &c., of original and varied designs, entirely novel to all foreign manufacturers, and of incalculable advantage to the photographer, who in using them can multiply his negative productions with almost fabulous rapidity, while the quality of his work attains to the highest possible standard of excellence in all respects where absolute accuracy and precision of mechanical manipulation is required. By the introduction of these inventions the American Optical Co. have, of course, distanced all rivals, and are now the acknowledged leaders of the photographic apparatus business, not only in this country, but in Europe, as photographers from all sections of the globe are using their goods.

"The unquestioned superiority of the products of this company have induced some parties in this country to copy their designs, their sole and original inventions, but the imitations are so clumsy and the workmanship so decidedly inferior in every respect, that no intelligent purchaser can be deceived, the counterfeit being as palpable as in the comparison of the silver dollar and its base imitation. The products of this company are so large as to exceed those of all the other manufacturers in this country combined, notwithstanding which the constantly increasing demand for their goods renders it impossible to keep far ahead of their orders, or stock up with an assortment embracing all their varieties.

"The goods which were exhibited at Vienna were taken from the regular stock and not made expressly for exhibition, yet they attracted unqualified admiration from all visitors at the Fair, and experts were perfectly delighted upon examination of their original and wonderful improvements. The

TRY BAKER'S PENCILLING VARNISH.

Commissioners very justly awarded this company the highest prize in their gift notwithstanding the unquestioned *progress* which other manufacturers had made, as evinced in their display, and which was duly acknowledged by the award of the medal of *progress*."

The above we take from a daily contemporary. It shows that *merit* is often noticed when we least expect it. We are always thankful for such good words, and are glad to say that photographers also evidence their good will by the continually growing orders we receive for our apparatus.

Waymouth's Vignette Papers are selling by thousands. Try them.

HOPEFUL SIGNS.

WE have been watching the signs of the times, and have every reason to hope for a very prosperous state of affairs in our art during the coming months. There is evidence of it on all sides. Of course, the dark weather usual at this season of the year hampers trade somewhat, but that is usual, and we expect it, but as the bath is always clearer and better after the precipitation of the organic matter in it, so will business be all the healthier and better for this cleansing of the late crash. Money is growing plenty, people who have held it are letting go, and we predict a satisfactory business for all whose enterprise deserve it.

Go on and do the best you can. Practice to make perfect work when the trade comes, and don't delay until it comes. Neither must you sit down and wait, but at least meet it half way. Think how to "go for it," and then "go." "Cheer up, boys, there is a better time (and *Times*) coming."

COLLINS'S NEW GROUP CARD-MOUNTS.

THESE are the prettiest and best things we have seen recently to give an impetus to business among photographers.

Anything that is new or novel, and makes home attractive withal, generally takes among the patrons of photography.

Try POULENCE & WITTMANN'S FRENCH GUN COTTON.

Photographers are every day photographing families. They come along one after another, from the rollicking baby to the grandfathers and grandmothers bowed with age, and when a satisfactory picture is secured of one—especially the baby—it brings all the rest. This makes business, and the photographer may think he is doing well; but how nice it is after the family has been gone through with and supplied with a dozen or half dozen each, to call their attention to these new mounts for groups. Here is something that will hold the pictures of the whole family of from three to eight persons, as the case may be, in a neat arrangement for hanging on the wall. The customer is delighted with the idea and orders several, perhaps, with frames to suit. This is the way to increase business, and the enterprising photographer will not be slow to take advantage of it.

The mounts are for sale by Scovill Manufacturing Company, and all stockdealers.

GREEN GLASS IN THE CAMERA.

OUR friend Mr. W. J. Baker, of Buffalo, anxious to experiment with Mr. Newton's green glass discovery, wrote to Mr. Newton to have him a camera-front made, arranged as Mr. Newton suggested. After Mr. Newton had done this, he wrote to Mr. Baker what follows, and gives us a copy for publication for the benefit of the fraternity:

NEW YORK, Nov. 30th, 1873.

MR. W. J. BAKER.

DEAR SIR: In the first place I delayed answering yours of October 28d until the front to your camera was completed. When it was done I was sick, and this is the first time I have felt well enough to attempt a letter. I will state there is no peculiar quality to green light which produces the effect which I have obtained. If you will place a gas or lamp light in your dark-room, and expose a sensitive plate to its influence at a given distance until you have, by repeated experiments, found just the time necessary to saturate the film with the actinic effect of your artificial light, to the point where the action of the developer will just

reach it when the exposed image is fully developed, you will have reduced the time necessary from one-half to one-fourth. In the investigations of the committee, of which I was a member in the summer of 1872, on the actinicism of the colored rays before and after exposure, you will recollect in our reports we stated that we could reduce the time from one-half to one-third. It, however, was found hardly susceptible of practical application by those who tried to utilize the facts. In revolving in my mind different modes of putting it, if possible, in some form which would make it useful and valuable to photographers, the idea of having the exposures simultaneous suggested itself. I accordingly had a front made to my camera, with a window on each side of the lens, two by four inches. In these windows I have tried every colored glass obtainable. The green admitted the actinic force necessary to produce the before described, and I adopted it. The results have been witnessed by some of our best photographers, and have been as previously described. Many, however, got little but fog, while others succeeded in obtaining results in every respect satisfactory. My light comes entirely from the roof, and therefore very little light enters, or rather would enter direct through windows in its front, at least compared with that which would enter from a side-light, especially when the camera fronted such light. To this difference in lighting which most of the galleries employ, that is to say, top- with side-light, is undoubtedly due to a great extent the difference in results. I have therefore had the front to your camera so corrected, that you can regulate the quantity of light to the maximum quantity; the negatives made by this process are usually thinner than those made in the ordinary way.

Hoping I have succeeded in making this matter plain to you, I am,

Very respectfully yours,

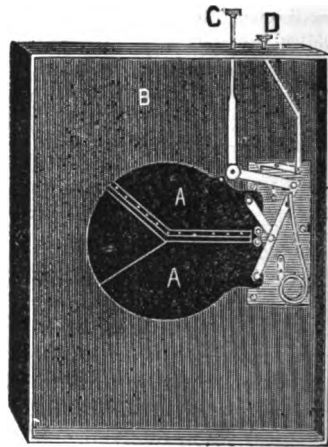
H. J. NEWTON.

**Examine Phenix Plate Co.'s Collodion
in the Patent Dreg Bottle.**

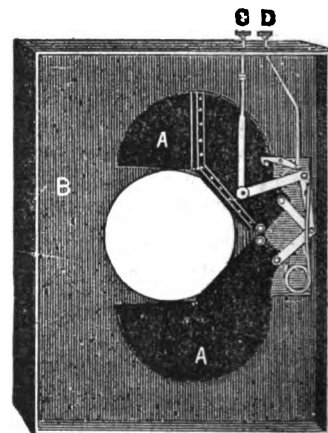
NEW STYLE FOLDING SCOPE.

Vaughn's Patent Photo-Gate.

"Oh pshaw!" says Mr. Operator, "if I could only have caught that natural expression before the child began to cry," but it took so long to throw the focussing cloth over the lens that his plate was spoiled, and further attempt to pose or compose the child was useless. If Mr. Operator had had one of Vaughan's Patent Photo-Gates he could



have made an instantaneous exposure without any perceptible movement. The accompanying cuts show what the Photo-Gate



is, and how it is operated. B represents the front inside view of a camera box; A A, the Vaughan's Patent Photo-Gate closed in Figure 1, and opened in Figure 2. The left

arm of the operator rests upon the top of the camera box. By pressing down the lever C, the Photo-Gate is opened, and held in place by a hook at the lower end of the lever D, as shown in Figure 2. The lightest touch on the lever D disengages the hook, and the Gate closes instantly. By a rapid and successive pressure of the fingers upon the levers C and D, the Gate is opened and closed instantaneously. Thus it is seen that the lens may be left uncapped, and the plate exposed at any desired moment, without attracting the attention of the sitter by movement of the arm.

The Scovill Manufacturing Company have accepted the exclusive agency of this useful invention, and will put it on all camera boxes, when ordered, at a moderate price in addition to the price of the box.

THE AWARDS.

FORTY-SECOND ANNUAL FAIR OF THE AMERICAN INSTITUTE.

Awards for Photographs, 1873.

- WM. KURTZ, 872 Broadway. For the best photographs, crayon drawings, and pencil drawings. Silver medal.
- THEO. GUBELMAN, 79 Newark Avenue, Jersey City, N. J. For imperial three-quarter length photographs. Bronze medal.
- JOSEPH KIRK, 661 Broad Street, Newark, N. J. For plain photographs. Diploma.
- GUSTAVUS A. FLACKE, 1000 Third Avenue. For photographs painted in oil; groups. Bronze medal.
- ALFRED B. COSTELLO, Hudson City, N. J. For medallion photographs. Diploma.
- A. NAGELI, 55 Third Avenue. For a collection of photographs. Diploma.
- BAARS & SPIER, 294 Bowery. For photographs of plated ware. Diploma.
- GERMAN PHOTOGRAPHIC ASSOCIATION, 66 East Fourth Street. For photographs, colored and plain. Bronze medal.
- G. W. PACH, 897 Broadway. For photographs of animals. Bronze medal.
- C. E. WATKINS, San Francisco, Cal. For the best landscape photographs. Silver medal.
- ROBT. B. TALFON, New Orleans, La. For photographic landscapes, colored. Diploma.
- L. A. FINLEY & Co., 16 Cedar Street. For photographic picture, Presidents of the United States. Diploma.
- ALVA PEARSALL, 615 Fulton Street, Brooklyn, L. I. For solar print portraits and imperial cartes. Diploma.
- WM. R. HOWELL, 867 Broadway. For the best portrait in pastel. Silver medal.
- A. W. JORDAN, 229 Greenwich Street. For the best photographic portraits. Silver medal.
- JOHN WEBER, 122 Spring Street. For portraits in crayon. Bronze medal.
- C. D. FREDRICKS & Co., 567 Broadway. For the best porcelain pictures and portraits of children. Silver medal.
- SCHWIND & KRUGER, 27 Avenue A. For prints from large contact negatives and *genre* groupings of children. Bronze medal.
- GEO. G. ROCKWOOD, 839 Broadway. For the best oil portrait and crayons. Silver medal.
- WM. RICHARDSON, 129 Broadway. For the best water-colors and crayons. Silver medal.
- CHAS. BIERSTADT, Niagara Falls, N. Y. For the best stereoscopic views. Silver medal.
- GEO. BARKER, Niagara Falls, N. Y. For stereoscopic views. Bronze medal.
- E. & H. T. ANTHONY & Co., 591 Broadway. For stereoscopic views. Diploma.
- SCOVILL MANUFACTURING COMPANY, 36 Park Row. For the best photographic apparatus. Silver medal.
- R. MORRISON, Greenpoint, L. I. For photographic lenses for outdoor work. Bronze medal.
- WOODBURY PHOTO-RELIEF PRINTING COMPANY, Philadelphia, J. Carbutt, Superintendent. For glass transparencies and paper prints. Silver medal.

We have to thank Mr. Charles Wager Hull, the efficient and courteous manager of the American Institute Fair, for the above list, and we congratulate the successful exhibitors on the awards received, only wishing the list had been twice as long. But we trust the success of those above named will not only stimulate them to greater efforts to excel even their present degree of excellence, but also induce many others to join in these commendable exhibitions of friendly rivalry and emulation, which are doing so much from year to year, both in the national and local exhibitions, to advance the standard of the photographic art.

MORRISON LANDSCAPE LENSES.

THE increasing demand for these lenses, and their great popularity, is but the legitimate result which was anticipated from the

SCHINDLER'S NEW SOFA IS BEAUTIFUL.

day of their introduction, and for common sense reasons, viz., the foreign view lenses of to-day are admitted by all landscape photographers of established reputation to be inferior to the *Globe lens* of Harrison and Schnitzer's make. Both of these eminent opticians are dead. On whom then are photographers to depend for a *reliable view lens*? Morrison is the only man for the situation. He grasps the best points of all the makers and *improves* upon them, eschewing the objectional features. The product approximates perfection more nearly than anything ever offered to the craft, while the price is within reason. The pre-eminence accorded to his lenses is, therefore, a mere natural and inevitable consequence. Mr. Morrison went abroad last month for the purpose of selecting a fresh lot of glass, such as he requires for the manufacture of his lenses. Scovill Manufacturing Company, his trade agents, are supplied with a full assortment for sale meanwhile.

**Use Slee's Roller for Mounting on
Slee's Prepared Mounts.**

**Clemons's Precipitate for Hyposulphite
of Silver.**

MR. JOHN R. CLEMONS, of Philadelphia, so long and favorably known as the friend of photography, has contributed, for the benefit of the craft, his formula for precipitating silver from hyposulphite of soda solution. Under ordinary circumstances Mr. Clemons proceeds as follows:

To, say 12 ounces hyposulphite solution placed in a half-gallon jar or bottle, add from a drachm to a drachm and a half of muriatic acid, and stir thoroughly. Settle, and add about the same quantity of sulphuric acid. Stir and settle. Take this solution to the opening of a flue or fireplace (to carry off the noxious fumes of sulphurous gas), and add sufficient chloride of sodium (common table-salt) to produce thorough precipitation. When the chemical change has been effected, i. e., hyposulphite of silver has been converted into sulphuret of silver, skim off the floating substance, if any, on the solution, and save it, as it contains a small quantity of silver.

Pour off the solution, and the precipitant,

which is now of a waxy consistency, may be refined at pleasure.

**Try the Vienna Albumen Paper, put up
in half-ream boxes.**

CONDITIONS OF SUCCESS.

BY WILLIAM SNELL.

THE conditions of success in the gallery are such, in general, as apply to all other kinds of business. There are some peculiar to the photograph business.

To say that a gallery has attained success implies that the proprietor has gained the confidence and good will of the community to that degree that they give him their custom.

That a man may succeed as a photographer it is all-important that he be adapted to his calling, as also a man of character, to command respect.

He should, by nature and culture, be possessed of a certain degree of taste and fondness for pictures and works of art.

He will then have a love for his business and an enthusiasm which impels him on to improve in every way, and to strive to excel. The man who takes up the business merely for a living, without any adaptation to it, had better turn his attention to some other calling; he certainly will not succeed in the gallery.

It is requisite that a man who would excel as a practical operator must have a good fair education; and the more the better. It will be of much use to him in many ways. A man without education and culture, who hardly knows an acid from an alkali, and is like a backwoodsman as to any refinement in manners, is as much out of place in a gallery as a clown in a drawing-room or a bull in a crockery shop. One who is irritable and peevish in temper, who does not possess a large share of patience and good nature, who is given to "blowing up" his customers if they find some fault with their pictures and ask for another sitting, had better make up his mind that he has mistaken his calling, and try and get a job at farming or some other business to which he is better adapted.

The old saw, that "molasses is better to

ATKINSON'S SAFETY MAIL ENVELOPES WE SELL.

catch flies than vinegar," is especially applicable, every day, in the gallery, and should be printed on a card and hung in the dark-room.

It is a good motto to act upon, never to let a person go out of the gallery, if possible, dissatisfied, either with your work or your ways. One of the most successful and popular photographers I could name, and of longest experience, has been known to give from ten to twenty sittings at different times to customers who were of the fussy kind; and he would always do it in good humor. Such a course, although trying to patience, pays in the long run. Bland and genial manners, and a pleasant word to persons entering the gallery, either by the proprietor or his assistant, tends to put them in good humor, and when the sitting is made, a more pleasing expression is secured, which is a point of the first importance always to be aimed at.

Loafers should find some other place to smoke their cigars and spit their tobacco juice. The smell of a gallery is often offensive to many people, especially ladies, and smoking makes it worse. Frequently ventilate the gallery, especially the dark-room, if you would preserve your health. Keep the gallery tidy and clean. Hang your specimens so as to make the best display; and keep your specimens at the door clean, and not left to get faded and soiled, for by them the work in the gallery is judged.

The reputation of the gallery should be jealously guarded in every respect. Nothing will break up the business of one sooner than to have a few bad stories get in circulation. The proprietor, if he regard his own reputation or that of his gallery, will not prostitute the art by making immodest or vulgar pictures. It is demoralizing to himself and to the young men who buy them. There are too many, especially in our large cities, who are obnoxious on this account, and ought to be in better business. If the proprietor operates himself he should learn to work quickly. He should handle everything as a soldier does his arms. Some are too slow in their movements—a half hour in preparing a plate, and as long in making a pose and drawing a focus. The sitter gets fidgety and out of patience. Chem-

icals should always be kept in working order, so that no annoying delay is made, and extra sittings required. Nothing is more annoying to the operator than to have a room full of customers waiting their turn, and chemicals working badly. Economy is a virtue of the first importance in the gallery. There is much waste, especially in large galleries, unless a close watch is kept in every department. Seventy-five per cent. or more of the silver and gold used can be recovered by proper care. The waste recovered in some of the largest galleries in New York amounts to from \$3000 to \$5000 annually. Thanks are due to Mr. Shaw or any one who has taught us to save what formerly went down the sink.

In conclusion, the remark applied in politics is true in the gallery—that "nothing succeeds like success;" by which we may understand, that the photographer who starts right, with a noble and generous ambition to succeed and excel in his work, reads all the journals and best books of the day, so as to keep posted in all the improvements made, attends strictly to business, strives to please, is economical in all respects, will acquire in time a reputation which will of itself be a success, and by which he may be assured of greater and greater success in the future.

**A Full Stock of Hance's Specialties
always on hand.**

LITTLE GRAINS OF SILVER.

GET a pair of Ryder's chromos, Pluck No. 1 and No. 2. They will do you good, and cheer you up when your bath works badly, or your patience is exhausted over refractory customers. A cheerful heart, with some of the *pluck* exhibited there, will overcome many difficulties.

USE WAYMOUTH'S VIGNETTE PAPERS. They are praised by all who use them. See illustration in the November number of the *Philadelphia Photographer*. New sizes ready.

WIPe carefully the mouth of your collodion bottle. It will save you from many ugly blotches on your negatives.

TRY BIGELOW'S OIL-PAINTED BACKGROUND.

THE "PEERLESS" LENSES are peerless. You will *peer more* if you have one. A good lens makes good work. Good work brings plenty to do.

WHEN your bath shows signs of failing, don't continue working it in hopes it will improve, for it doubtless needs rest or renovation.

HANCE'S PHOTOGRAPHIC SPECIALTIES are unequalled. They are prepared with great care, are always fresh, and give universal satisfaction.

HANCE'S GROUND-GLASS SUBSTITUTE is the most *perfect substitute* we have ever seen. Try it. The best way to use it is to coat two thin plates, and when dry, put their coated sides together, and run a piece of sticking paper around the edge. This protects it against dust, or being scratched.

NEWELL'S COMPOSITION is one of the best things in the market. Dishes of all kinds may be coated with it, and be perfectly impervious to any chemicals used in photography. We sell them.

THE PHENIX PLATES OVER ALL!

The Phenix Plates have won over the best Ferrotypes in the land, and are constantly receiving more and more praise. They are UNEQUALLED.

PRICE LIST—PER BOX.

SIZES,	1-9	1-6	1-4	4¼x6½	1-2	4½x10	4-4	5x7	7x10	8x10	10x14
											Per Sheet.
EGGSHELL,	\$0.80	\$1.25	\$1.85	\$1.85	\$2.20	\$2.20	\$2.40	\$2.40	\$2.70	\$2.70	\$0.14
GLOSSY,	90	1.35	2.00	2.00	2.35	2.35	2.70	2.70	2.90	2.90	15

PHENIX PLATE CO.—Scovill Mfg. Co., Agents, 4 Beekman St., N. Y.

CHAMPION PLATE—Black or Chocolate-Tinted.

10 x 14, Eggshell, per box, 200 plates,	\$24 00
10 x 14, Glossy, " 200 " "	26 00

SCOVILL MANUFACTURING CO., 4 Beekman St., N. Y.

CAUTION.

THE PUBLIC ARE HEREBY NOTIFIED THAT THE

PHILADELPHIA CARTE ENVELOPE,

Manufactured by Nixon & Stokes, Philadelphia, and sold by the regular stockhouses (who will not deal in contraband goods), is the only Carte Envelope that is patented.

ALL OTHERS ARE AN INFRINGEMENT,

and parties buying, selling, or using them will be dealt with according to law.

We warn the trade against buying Carte or Picture Envelopes of travellers who are not connected with the regular stockhouses.

NIXON & STOKES,

No. 2400 VINE STREET, PHILADELPHIA.

Photographers' Posing Furniture a Specialty

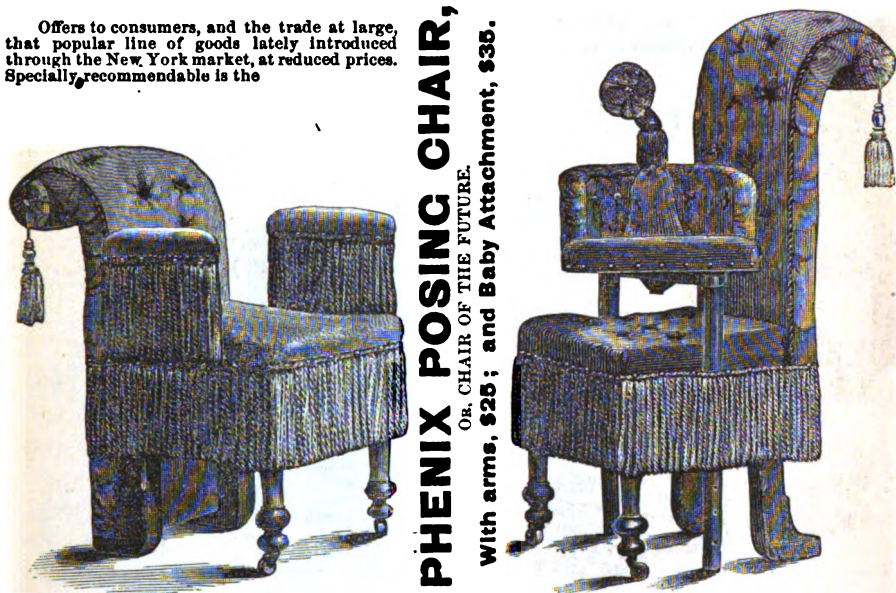
AT THE INDUSTRIAL ART WORKS.

C. A. SCHINDLER, Manufacturer and Patentee,

P. O. Box 63, WEST HOBOKEN, N. J., opposite West 23d Street, New York City,

Offers to consumers, and the trade at large, that popular line of goods lately introduced through the New York market, at reduced prices. Specially recommendable is the

PHENIX POSING CHAIR,
OR, CHAIR OF THE FUTURE.
With arms, \$25; and Baby Attachment, \$35.



This is the only sliding-back chair yet produced in which the brittle cast-iron in the main part is avoided. It is constructed of hard wood and wrought-iron. The rigid back rises over twelve inches, making it equal to six chairs in one. It is luxuriously upholstered and trimmed, and, through its elegance and comfort, gives the sitter a graceful and natural position without the aid of objectionable head and body braces.

A practical experience of over twenty-five years in manufacturing fine furniture, for New York City trade, should be a sufficient guarantee for their quality. Special orders promptly forwarded. Novelties constantly added. Pedestals, Adjustable Curtains, with fixtures, Imitation Rocks, Ivy Vines, Eye Stands, &c., &c.

Material for recovering, &c., furnished. The principal New York stockhouses have also adopted my

PRICE LIST—All Articles in Finished Black Walnut.

No. 1,	Position Chair,	upholstered in rep, 6 inch fringe.....	\$10 80
" 2,	" " "	ash rail frame, upholstered in terry, 6 inch fringe.....	12 00
" 3,	" " "	" " " spring seat, 6 inch fringe.....	12 50
" 4,	" " "	" " " " 8 " "	15 00
" 5,	" " "	" " " " 10 " "	16 50
" 6,	" " "	" " " plush, " 8 " "	17 50
" 7,	" " "	" " " " 10 " "	19 00
" 8,	" " "	revolving, upholstered in terry, 6 inch fringe.....	14 00
" 9,	" " "	" " " 8 " "	16 50
" 10,	" " "	" " " plush, 8 " "	19 00
" 11,	Phoenix Posing Chair, or Chair of the Future, no arms, velvet, 6 inch fringe.....		21 00
" 12,	" " "	" " " " 8 " "	23 00
" 13,	" " "	" " " velvetteen, 8 inch fringe,	25 00
" 14,	" " "	" " " revolving, " 8 " "	27 50
" 15,	" " "	" " " plush, 8 " "	33 00
" 16,	" " "	" " " with arms, velvet, 6 " "	25 00
" 17,	" " "	" " " velvetteen, 8 " "	29 00
" 18,	" " "	" " " plush, 8 " "	37 50
" 19,	" " "	" " " arms and baby attach't, velvet, 6 " "	35 00
" 20,	" " "	" " " velvetteen, 8 " "	40 00
" 21,	Settee Chair, engraved, paneled, gilded, covered in terry.....		35 00
" 22,	" " different patterns, " "		35 00
" 23,	Child's Chair, velvetteen, 6 inch fringe.....		18 75
" 24,	" " plush, 6 " "		23 00
" 25,	Child's Lounge, in rep		11 00
" 26,	" " velvetteen		12 50
" 27,	" " plush		18 00
" 28,	Child's Sofa, three feet long, in rep.....		15 00
" 29,	" " velvetteen.....		17 50
" 30,	" " plush		25 00
" 31,	Child's High Chair, velvetteen, 6 inch fringe.....		16 00
" 32,	Baby Attachment, separate.....		12 00

workers are about starting a national association. Success to them.

Buy the "Practical Printer." \$2.50.

Just arrived, of the *best quality*, German glass baths, Scovill Manufacturing Company's importation.

Inside.	Plate.	Price.
5 x 7	$\frac{1}{2}$	\$1 40 each.
7 x 9 $\frac{1}{4}$	$\frac{3}{4}$	2 12 "
9 x 11	8 x 10	2 75 "
11 x 14	10 x 12	3 75 "
12 x 16	11 x 14	6 00 "
16 x 20	14 x 17	17 00 "
16 x 21	14 x 17	20 00 "

Examine the Eagle Plate.

For Prize Ferrotypes use the Eagle Plate.

THE CHICAGO EXHIBITION.

LAST month we spoke of the Convention; we will now say something about the Exhibition.

In the stock line the display was full and complete. Novelties of every description, for doing all sorts of work and producing all sorts of effects, were liberally shown; while the standard photographic apparatus was probably superior to any collection ever before exhibited. In this department the display by the Scovill Manufacturing Company was second to none; their stock of American Optical Company's magnificent apparatus commanding universal admiration. We want no better evidence of the superiority of these goods than the fact that they were all sold the second day of the Exhibition.

In the photographic department there were many evidences of improvement and artistic progress. The "Art Gallery" was especially adapted to a favorable display of the fine collection of pictures with which it was filled, and all interested had an opportunity to study them to the best advantage.

Among the collections which commanded the most attention were those of Bogardus, Barhydt, Brand, Mosher, Rocher, Bradley & Rulofson, and Benerman & Wilson. This last was composed almost exclusively of

foreign pictures, a collection made mostly by Mr. Wilson during his European trip last year, and which has since graced the office of the *Philadelphia Photographer* in Philadelphia. The spirit shown by Messrs. Benerman & Wilson was certainly commendable in transporting to Chicago all that large collection, with no other object in view than to give photographers an opportunity of seeing them. One of our leading photographers remarked in our hearing that there was "more art to be seen in that collection in five minutes than in all the rest of the Exhibition."

While we might not fully agree with this broad statement, yet the work there was of a very high order of merit. One attractive feature to visitors was the pictures being numbered and catalogued.

But one of the most conspicuous features of this Exhibition was the long list of absentees,—those that have always stood foremost in the art, and have heretofore been identified with each exhibition as the leaders in all that was excellent and progressive. We may be pardoned for mentioning the following as being conspicuous for their absence: Kurtz, Sarony, Gurney, Fredericks, Kent, Baker, Ryder, Landy, Van Loo, Gutekunst, and Rhoads. They doubtless all had good reasons for not being represented there, but we allude to it because they were missed; they have come to be representative men in the art, and when so many absent themselves the vacancy is very apparent.

It is unquestionably true that the men who attend these Exhibitions, and make the effort to display some of their best work, retain their positions in the front rank, or soon improve sufficiently to be placed there; while those that are never seen at the exhibitions seldom acquire more than a limited reputation, and are usually a little behind in point of artistic attainments.

To sum up the whole matter, no man can afford to ignore these annual gatherings of the votaries of his art. Be he ever so high, or his reputation as extensive as our civilization, he will suffer; he will drop in the scale if he holds himself aloof from the National Exhibitions, where are concentrated all that is representative, artistic, ex-

SEND FOR A CATALOGUE OF A. O. CO.'S APPARATUS.

cellent, educational, and progressive in the photographic art.

Give the Eagle Plate one trial, and you will use no other.

SCHINDLER'S NOVELTIES.

THE reversible head-rest back for the "Chair of the Future" is entirely a new feature, and a decided step forward. In the way of posing requisites, for obtaining a natural, graceful position, it has no comparison. Together with the baby attachment it is all in all for every imaginable posing purpose. No more stiffness and distortions of the features with the old iron head-rest. Reversed it is the same graceful support for standing figures as well. The extra cost is \$3, being still by far less in price than the infringing and spurious "Chicago Chair." Besides saving money, parties can clear themselves of the risk incurred in buying or selling infringements. In the construction of the "Chair of the Future" or "Phoenix Chair," the patentee (a practical artisan in the different branches) made a revolution in chair-making. For the more strain the back gets on its upper end the firmer and more reliable it is supported on its lower end by resting against the hind legs, sliding on a wrought-iron arm, which crosses the joints of the side rail and hind legs, making it indestructible in wear. Its weight is only 80 pounds; the freight, 1000 miles out of New York, \$1.50 per 100. The new reversible head-rest back can be had separate, to fit chairs of former make, price \$12. The vignetting head-rest, back separate, costs \$10. Over 2600 of these, and other chairs named in the price-list, sold since their introduction in 1870, speak volumes of testimony in their favor.

The Pedestals, one circular, the other rectangular, are delightful accessories, in classic taste, covered in plush, satin, and velvet, with gilt mountings. They are rich and attractive in the picture, and a splendid ornament to the gallery or reception-room when not in use. The price, respectively \$20 and \$30, is so low, that the monotony

of having the same accessory show in every picture should be avoided.

The Settee Chairs, a production in the modern furniture line, are indispensable for graceful positions, since the leading members in the art have them in their studios. Price, \$35 each.

The Adjustable Curtain, attached to an elegant stand, can be placed wherever needed, made of velvet or imitation of silk lined—eight feet high, six feet wide, with a very effective Grecian border five inches wide—is the richest and most useful requisite of its kind in the market, and sold for \$18 complete.

The set of Artificial Rocks consists of three sizes, viz., No. 1, 2 x 2 x 2 feet; No. 2, 2 x 3 x 2 feet; No. 3, 2 x 4 x 2 feet; each having a seat. Placed together they form one of six feet wide, inclined plane for lounging position; grouped they form innumerable views, imitating nature to perfection. In shipping they are packed inside full with other goods, and only add a trifle to space or weight. Sold separate at \$6, \$8, and \$10; the set of three for \$20.

The Eye-rest and Copying-stand is a valuable little assistant under the skylight during exposure. It rises eight feet, is self-supporting at any height, holds the picture free and clear, made in walnut, with tasteful legs, and sells rapidly for \$6.

All the above articles can be had of your stockdealer, or from Scovill Manufacturing Company.

Ask your dealer for the Eagle Plate for one trial.

LESSONS IN PHOTOGRAPHY.

BY "JOHN."

Photographer. Having your glass prepared, we can now proceed with our work. The next thing in order is to prepare a sensitive plate and make a negative. To do this we use collodion, bath, developer, &c.

Pupil. But how are these made? You have not told me yet.

Photographer. True, that is a very important point in the process of instruction.

To prepare collodion we want to be sure

USE JACOBY'S COMBINATION PRINTING-FRAMES.

of the best materials. Procure them of a regular stockdealer, and you will be quite certain of having something reliable. When doing only a small business, or not being able to make it yourself satisfactorily, it is best to buy what you want of your dealer, being sure to get that made by some reliable manufacturer. I use Hance's collodions a great deal, and mix them some with my own. His new *double iodized collodion* is very superior, and where one is not using a great deal, it is invaluable on account of its keeping qualities.

But using these would not learn you how to make for yourself. To make a collodion that may be used at once we take

Alcohol,	5 ounces.
Ether,	5 "
Iodide of Ammonium,	60 grains.
Bromide of Potassium,	25 "
Cotton,	50 "

Dissolve the iodide of ammonium in the ether and alcohol; then to the bromide of potassium add a few drops of pure water, just enough to dissolve it; the solution of this is facilitated by grinding, in a small glass or porcelain mortar; when dissolved add to the ether and alcohol solution, and shake well. A white precipitate is formed, which is readily filtered out through a single sheet of filtering-paper, and the solution is ready for the cotton. In this condition, however, it may be made in any quantity, and kept for use as wanted. The gun-cotton is to be added a little at a time till all in, and then the whole thoroughly shaken. When the cotton is all dissolved the collodion may be filtered through filtering-cotton, if wanted for immediate use, or it may be allowed to settle for a few hours, which is really better.

Pupil. Why is that bottle made with hoops around it?

Photographer.—That is the patent dreg bottle; you see the bottom spreads out in the form of an inverted dish; the dregs or sediment settles into this, and when the bottle is tipped remains in the space in the bottom, instead of being stirred up in the clear solution above. The "hoops" measure the number of ounces. There are other formulæ for collodion which may be used to advantage. A very good one is,

Ether and Alcohol,	equal parts.
Iodide of Ammonium,	3 grains.
Iodide of Cadmium,	3 "
Bromide of Cadmium,	3 "

These salts all dissolve readily in the solution, which does not need to be filtered. This collodion will require several days to ripen before it is in good working condition. It will also keep longer than the other.

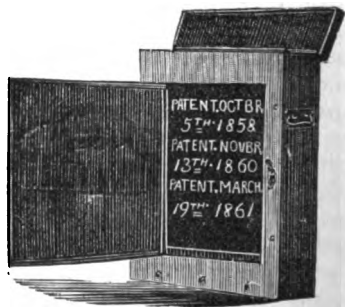
There is another formula for collodion which, if more generally used, would be adopted into general practice. This is to make a plain collodion and let it ripen. A good stock that will last for months may be made, as it continually improves by age. Make it with ether and alcohol equal parts, with six grains of cotton to the ounce. The ripening is assisted by adding about half a grain to the ounce of bromide of cadmium.

To excite this for use we prepare an iodizing solution, made as follows:

Alcohol,	1 ounce.
Iodide of Ammonium,	40 grains.
Iodide of Cadmium,	20 "
Bromide of Cadmium,	16 "
Bromide of Ammonium,	8 "
Bromide of Potassium,	8 "

Pulverize the bromides and dissolve them in the alcohol, and then add the iodides. To prepare collodion for use add one ounce of the iodizer to ten ounces of plain collodion.

I use Hance's cotton mostly. His "silver spray" and "delicate cream" answer every purpose. Now while our collodion is settling we will look after the bath.



Pupil. Do you call that box a bath?

Photographer. That box is a bath; one of the American Optical Company's glass baths. Or, in other words, it is a bath-holder.

USE POULENCE & WITMAN'S FRENCH GUN-COTTON.

To make a bath we take

Nitrate of Silver, . . .	1 ounce.
Iodide of Potassium, . . .	2 grains.
Hance's Bath Preservative, 40 "	
Water,	40 ounces.

Dissolve the silver in the water, after reserving a few ounces for the potassium and preservative. Then dissolve these and add to the bath, shake well, and filter perfectly clear. After filtering add about a drop of pure nitric acid for every fourteen ounces of the solution, and in a short time it will be ready for use.

The water for the bath should be as pure as possible. When good distilled or ice water is not to be had conveniently, take such as you have, and to a gallon add a few grains of silver—the exact quantity is immaterial—and place it in the sun. You will see it soon turn black and all the impurities will be thrown down. It should remain in the sun until it becomes perfectly clear, when it may be used for bath purposes. But do not make a mistake, and suppose that this *pure water* may be used for any other purpose; for remember, it contains silver, which might work injuriously in a solution prepared for some other part of the work.

(To be continued.)

10 x 14 E. S. Eagle Plate, 200 in a box, only \$26, and no charge for the box.

THE PRACTICAL PRINTER.

HAVING had an opportunity to look over this excellent work on photographic printing, we do not hesitate to pronounce it a success. We do not mean a financial success to the publishers, though we do hope it will prove so, but a success in giving just the information wanted; treating the subject in a full and comprehensive manner. Mr. Hearn as a practical man seems to have comprehended the necessities of the craft, and given them in this book the information that, of all things, was most needed.

We have not space to quote chapters of the book, as we would like to do, but must be content to make a few extracts, for which we have the permission of Messrs. Bener-

man & Wilson, Philadelphia, the publishers, to show the character of the work.

"A weak bath loses so much, after silvering a dozen sheets or so, that it commences to make itself felt, and consequently needs strengthening about all of the time."

"A strong bath loses also, but the silver is not taken up in so large a proportion as it is in the weak bath, and the strong bath can be used for a much longer time, even until there will not be enough solution to sensitize the paper, without giving the printer any trouble whatever."

"The prints will be better in many respects with an average bath than with the extremes, as a trial will show to the observant printer."

"Citric acid is sometimes added to the printing-bath, in a greater or less quantity, according to the time the paper is required to be kept."

"*Sunning the Bath.*—The bath is made alkaline and placed out in the sunlight, for the purpose of throwing down the organic matter in it.

"The bath is very much improved by sunning, and it should always be placed out in the light when not in use.

"To prevent evaporation keep the bottle tightly closed.

"When the bath is not in use, and is in the silvering dish, it should always be covered up.

"Pour the bath back into the bottle every night, wash the dish out thoroughly, saving the first two washings, and until again wanted, set it away, bottom upwards, on a shelf covered with clean paper."

"The paper while drying will curl up, thus causing it to fume unevenly. To prevent this the lower part of the paper should be held by a lath which has a spring clip nailed at each end of it."

"Dust the negative two or three times, and *immediately* after dusting place your paper on it before the dust settles again."

"Paper with metal and albumen spots on it can be very often saved when the albumen spots are not too large, by placing that part of the paper containing the spots on the deepest shadow parts of the negatives."

"Do not tone in too strong a light, but in rather a weak one, and judge not the

HANCE'S NEW BATH PRESERVATIVE—TRY IT. \$1.

tones of the prints while in the hand, but while lying down in the dish.

"Tone exactly as you wish them when dried, and no more nor less."

"Keep the prints in constant motion while in the fixing bath, and do not allow one single print to stick to another, even for the space of ten seconds, if you wish to have them properly fixed.

"Too much attention cannot be given to this little thing if you wish to have your prints fixed evenly, and not have them come out when finished full of darkish-brown spots, yellow stains, &c."

We will mail a copy of the book to any address, on receipt of price—\$2.50.

The Eagle Plate is \$8 per box less than any other first quality plate.

PHOTOGRAPHY IN BERLIN.

OUR old friend Dr. Vogel presides over one of the liveliest and most enthusiastic photographic societies in the world. In fact, we are not sure but what Berlin stands in the matter of societies where she did in photography five years ago, namely, *ahead!*

We make a few interesting notes from the report of a recent meeting, from Dr. Vogel's excellent magazine, the *Photographische Mittheilungen*:

The Secretary read a communication from A. de Constant in regard to tobacco ashes being the cause of producing small yellow spots on paper prints.

The Messrs. Marowsky, O. Lindner, and Braun acknowledged themselves great smokers, but none have noticed such spots; Braun has even blown the smoke on damp silvered paper without injury. Herr Prümme remarks that the ashes and not the smoke are mentioned as injurious.

The President alluded to the influence of the varnish on the durability of the negative, showing the importance of this point in the negatives of the coming transit of Venus, in which shrinking or cracking of the varnish would make measuring illusory. Herr Prümme repeats that a preliminary coating of yellow dextrin prevents cracking. Herr O. Lindner states, according to his experience, the gum has no material influence

in cracking, he having worked with several with the same result.

The Secretary thinks the fault in the glass used. He came to this conclusion, as it always occurs in a certain size of glass, which in all probability is cut from another quality of glass.

Herr Prümme notices a solution of yellow shellac in a concentrated solution of borax. In this the shellac is reduced to soap, which can also be accomplished with bicarbonate of soda. Herr Prümme has used this; it has the appearance of ground-glass, which gives it a good surface for retouching, and can be protected afterwards with spirit varnish. The President, who has tried this, states, by handling with moist fingers, it is apt to suffer.

Herr Malmberg, a member of the Russian Venus expedition for East Siberia, states his intention to get rid of all varnish eventualities, by not varnishing his sun negatives, but protecting them with a piece of plate-glass cemented on.

The President replied that an unvarnished film can be easily detached from the plate-glass, as it is known how poorly some collodions adhere to plate-glass. He then gave his experience on the influence of the collodion on the stability of the stratum. He states that as shrinking will always occur, in the focus of the telescope is contained a glass trellis of a known size, which is photographed along with each exposure. The individual lines are about $5\frac{1}{2}$ m.m. apart, which corresponds to an angle of 100 seconds. When, therefore, the film contracts about $\frac{1}{1000}$ it would make a mistake of $\frac{1}{10}$ of a second; this would be too great. As particularly practicable, the speaker recommends in place of albumen for a preliminary coating very thin caoutchouc; strong solutions act detrimental; thin ones, however, have proved excellent. The speaker uses one part of caoutchouc to one hundred parts of chloroform, then thin it down with ten times its volume of light benzine, and filter; he coats the plates before collodionizing, after they have been washed, dried, and dusted. He recommends it so much the more, as there is continued complaint by using albumen.

COMPOUND DEVELOPER—30 cents per pound. TRY IT.

Herr O. Lindner albumenizes constantly without noticing any disadvantages. He noticed that negatives taken on albumen showed less contraction than those taken on the bare glass, which was important in copying topographical charts. He asks whether in using caoutchouc the benzin has no bad effect. The President stated it was not the case, as it evaporates. The defects, often noticed on carefully prepared albumenized plates, are caused by small fungi forming, especially in a damp locality.

After some discussion in regard to what process could be used for the transit of Venus, Herr Prüm took the chair, and Dr. Vogel the floor.

Dr. Vogel proposed Mr. Edward L. Wilson, of Philadelphia, and Government-Counsellor Prof. Horning, in Vienna, as honorary members. He accentuated the services of Herr Horning at the Vienna Exposition, especially on the happy and successful winding up of the work allotted to the photographic jury; further, his services to elevate the Photographic Society in Vienna, and to open the path of friendly understanding with our society. Edward L. Wilson has made himself worthy by founding the great National Photographic Association of North America, through his position as their Permanent Secretary. He has, through his publications, been the first to bring to German photography acknowledgment in America, which not only induced the exportation of German pictures to America, but an intimate intellectual intercourse and change of opinions between German and American photographers, to which we already owe encouragement, instruction, and information. Both were unanimously elected.

The Eagle Plate is made black and tinted eggshell, and black and tinted glossy.

The Production of Enlargements upon Albumenized Paper by Development.

BY CARL MATZNER.*

Preparation of the Paper.—In the first

* Read before the Vienna Photographic Society.

place, I prepare a bath of nitrate of silver, dissolving one part of silver in eight parts of water, and to it I add, as soon as the crystals have been completely dissolved, the tenth part of citric acid, previously dissolved in a little water. During the gradual addition of the acid the bath is continually shaken.

I choose good stout albumenized paper, and immerse the same in the silver-bath so that the back, as well as the front, becomes impregnated with the solution. After three minutes, I hang the sheet up in a perfectly dry place, and allow it to desiccate slowly. The paper is more carefully kept from the light than ordinary sensitized paper, for it is somewhat more sensitive. It may be prepared a day or two before it is required, for the acid in the bath allows of its preservation in good condition for a week or more.

Printing.—The printing is done either in a pressure-frame, or in the solar camera by enlarging. For the latter case this developing process is especially suitable. I allow the printing to go on for a fourth or fifth only of the usual time, so as to obtain a weak, but perfectly visible impression, and then put the print away in the dark-room for further treatment hereafter.

Development.—The development may be conducted the same day, or at a later period. If the pictures were treated with gallic acid solution—even with the addition of acid—the whites would change to yellow, and finally become brown. I protect myself from such a change in the following manner: I first lay the sheet, which has been partially printed, in a clean dish large enough for the purpose, in a well-shaded apartment, and pour over it some distilled water, just enough to cover the bottom of the dish and wet the sheet on both sides. The addition of a few drops of the silver bath above described to the water in the dish is of great advantage. I tilt the dish a little, so that the liquid therein runs to one corner, and add (when a whole sheet is in the dish) an ounce or an ounce and a half of glacial acetic acid to the liquid. This is then allowed to run under and over the picture, and to penetrate it for about five minutes. After this I proceed with the development. The albumenized paper has

EXAMINE BIRD'S HEAD-SCREEN.

been rendered transparent by the acetic acid, and the great point has now been achieved, for it is possible to watch the action of the gallic acid from the back of the print.

I slowly pour over the picture a concentrated solution of gallic acid, which has also been acidified with acetic acid, and gently move the dish to and fro. The picture slowly develops, and, after about half an hour, becomes very vigorous and dark, if the temperature is not too low. In the course of the operation one can see whether it is possible to secure the right amount of density. If this cannot be attained, then a few drops of the first-named silver solution are added, to give intensity. As the fixing agent diminishes somewhat the intensity of the picture, it should be thoroughly developed. It is washed thoroughly, until all the chloride of silver and the acetic acid have been altogether removed—at the last with distilled water—after which the toning is proceeded with.

Toning.—Any toning bath with which one is familiar may be employed; but it must be used only half as strong as usual. I pour the water off the picture, and pour on the toning solution, rapidly agitating the liquid the while. On the first apparent signs of a change of tone I take the picture out, and dip it into a hyposulphite bath ready to hand (one part soda and twelve parts water), in which it is thoroughly fixed. Finally, the picture is carefully washed as usual.

To enhance the tone of the pictures, a little gold solution is added the day before to the fixing bath, the latter being shaken the while. The process is a little costly, but the pictures produced are of great value. Gold solution is added until the fluid becomes quite milky. The same bath may be employed many times before it becomes unserviceable.

The Price of Eagle Plates:

10 x 14 eggshell tinted or black, per box
200 plates, \$26 00
10 x 14 glossy tinted or black, per box
200 plates, 28 00
and no charge for boxing.

THE EAGLE PLATE IS UNEQUALLED.

NOTES FROM THE NEWS.

BY G. WHARTON SIMPSON, M.A., F.S.A.

Durable Sensitive Paper—Tobacco as a Preservative for Dry Plates.

Durable Sensitive Paper.—Notwithstanding the various modes of preparing permanent sensitive paper which have been published, many of which have been very successful, there is one paper in the English market prepared by a secret process, which is, beyond question, superior to any sample prepared by a known process. Dr. Schnauss has recently been engaged in attempting to analyze a sample of this paper with a view to discover to what especial element this superiority was due. Unfortunately for a successful issue, he had not a sufficient quantity of the paper to make a satisfactory analysis of the complex mixture on the surface of the paper. Nevertheless, he describes his experiments and the direction in which they seem to point.

Without following him through the various operations, I may just mention the final results, which, it must be admitted, are meagre enough; but the Doctor promises to renew his research on a completer scale when he obtains a fresh supply of paper. He says:

"The following substances were proved to be present in the paper: Albumen, chloride of silver, nitrate of silver, soda, ammonia (most likely from the salts in the albumen), nitric acid, citric acid, and traces of sulphuric acid, phosphate of lime, and oxide of iron.

"As above stated, the citric acid may be added—if there is a sodium compound—to the albumen of the paper, or to the silver bath, or employed in a special bath before or after sensitizing. We should think that the paper would be more durable if the acid were added in the last-named manner."

Tobacco as a Preservative for Dry-plates.

Some time ago I sent you brief details of a successful dry process, in which one of my correspondents, Mr. W. H. Watson, had used tobacco as his preservative. He has since sent me much fuller details. As tobacco contains some salts soluble in cold water, which are better eliminated from

the preservative, he soaks it for a short time in cold water, and then proceeds to make his preservative. He says:

"Tobaccos vary in the quantity of nicotine which they contain, but in many cases we find from four to five per cent. In the use of tobacco as a preservative for dry plates, I believe the action is due considerably to this nicotine, which is naturally present. The preparation of the plate is simply this: The plate, cleaned and coated with collodion, is sensitized in a nitrate of silver bath, slightly acid, and containing about thirty-five grains of nitrate of silver in an ounce of water, drained, well washed with pure running water, and allowed to remain in a body of good rain-water while another plate is being prepared in the same way. The plate is again drained, after which pour over sufficient of the preservative to easily cover the plate; allow this to remain on the plate about three minutes, occasionally moving backwards and forwards. Again wash, and finally dry.

"The preservative is prepared as follows. Take—

Tobacco,	20 grains.
Gum-arabic,	10 "
Water,	1 ounce.

"The tobacco should be treated with boiling water, and pressed, the decoction allowed to stand till cool, filtered, and in the filtrate dissolve the gum. I use the gum powdered, as it is much more easily dissolved than in its ordinary lumpy state. I find that plates so prepared may be developed either by the simple pyrogallie acid developer, or by the alkaline process. For the former I prepare a solution consisting of—

Pyrogallie Acid,	3.5 grains.
Citric Acid,	6 "
Water,	1 ounce.

"To develop by the alkaline method I prepare the following solutions:

No. 1.—Pyrogallie Acid,	6 grains.
Water,	1 ounce.
No. 2.—Bromide of Potassium,	12 grains.
Water,	1 ounce.
No. 3.—Carbonate of Ammonia,	30 grains.
Water,	1 ounce.

"Proceed as usual.

"From what I have seen of this process, I believe that plates prepared according to the above directions will keep months before exposure, and be about as sensitive as those prepared by the Fothergill process. The negatives are clear and brilliant, with a large amount of detail."

CARMAN PEASELL,

MANUFACTURER

FOR THE TRADE ONLY.

STEREOSCOPES,

Of the Finest Workmanship, fitted with the best

FRENCH LENSES.

Trial Orders solicited from Jobbers only, and Satisfaction Guaranteed.

WALNUT AND ROSEWOOD PEDESTALS

Always on hand at bottom figures.

CARMAN PEASELL,

119 & 121 Freeman Street,

W. H. ST. JOHN, Agent for the Sales.

GREENPOINT, N. Y.

Morrison's Wide-Angle View Lenses

Patented May 21st, 1872.

(See our article on page 69 of the May, 1873, number.)

These Lenses are constructed on scientific principles; they embrace an angle of fully 90 degrees, and are absolutely free from distortion and flare.

No.	Size View.	Focal Length.	Price.
1	3 x 3	2½ inch.	\$40 00 per pair.
2	3½ x 5	3 "	40 00 "
3	4 x 5½	4 "	40 00 "
4	4½ x 6½	4½ "	40 00 "
5	5 x 8	5 "	40 00 "
6	6½ x 8½	6 "	30 00 each.
7	8 x 10	8 "	40 00 "
8	11 x 14	10 "	60 00 "
9	14 x 17	13½ "	80 00 "
10	17 x 20	15½ "	100 00 "
11	24 x 30	18 "	160 00 "

REMARKS.

Nos. 1 to 5 are all made in matched pairs for stereoscopic work. The shorter-focussed Lenses are especially adapted for street and other views in confined situations. For general purposes, a pair of No. 5 Lenses will be found most useful. Equipped with these, and a new Philadelphia Box, the photographer will be prepared for stereoscopic or the popular 5 x 8 views.

SCOVILL MANUFACTURING CO., New York, Trade Agents.

THE

"PEERLESS" PORTRAIT LENS.

ALL SIZES READY.

PRICES:

1-4 size, with central stops.....	\$12 50
1-2 " "	20 00
4-4 " "	50 00
Extra 4-4 " "	125 00
1-2 " " quick acting.....	40 00
4-4 " "	60 00
Extra 4-4 " "	150 00

These lenses are guaranteed first-class in every respect.

SCOVILL MANUFACTURING CO., New York.

THE GREAT
National Photographic Emporium,

No. 46 North Charles Street,

BALTIMORE, MD.,

THE MOST COMPLETE AND BEST REGULATED STOCKHOUSE
IN AMERICA,

FURNISHING

EVERYTHING PERTAINING TO PHOTOGRAPHY

OF THE FINEST AND BEST QUALITY,

AT THE LOWEST MARKET RATES.

A SPECIAL DISCOUNT SYSTEM,

AN IMPORTANT FEATURE TO CASH BUYERS.

Send for the New Price List, Illustrated, gratis on application.

“The Photographer’s Friend,”

Published by this thriving Emporium, is issued for 1874 as a

BI-MONTHLY PHOTOGRAPHIC MAGAZINE,

And will excel in practical instruction and beautiful illustrations all the previous efforts.

Terms, \$2.50 per annum, in advance.

165

tinue my subscription to the *Bulletin*, which, I believe, expired with this month. I have no doubt, judging by the past, but that you will give *me* the full worth of the small amount, especially if you continue to interpret my acts and words in the novel and unexpected manner lately assumed by you.

I admire your prudence in declining an imaginary invitation to an imaginary contest, and never did suppose that you seriously wished to discuss with me the only thing I can suppose to be the real "*casus belli*," your unfortunate box.

If your new line of attack, that you have brought me out as an open foe, suits you, keep it. I will be as careful as I can not to dispel this terrible spectre of your fearful imagination. The idea pleases me to the extent of smiles even. I trust you will receive that public sympathy and protection which your defenceless position will doubtless enlist.

There is an old adage that "we may learn truth about ourselves from our enemies." In your present state of mind this may give effect to what I will venture to add, that if the *Bulletin* would drop, once for all, all sneers, digs, cuts, innuendoes, invidious comparisons and allusions to other people's medals and goods, it would far better serve the purpose for which you designed it. Its tone and dignity have been greatly injured and lowered by these little paragraphs. They have served only to advertise your neighbors, and injured the estimation of your firm in the minds of thoughtful people. Believe me, that I am not the only one who has noticed and said this.

What probably offended you most in my testimonial to the American Optical Company was, as you discovered, drawn from one of those same spiteful sneers, headed the "Merry Concoctical Company." The things you most violently attacked have been the very ones that were superior to the corresponding ones you offered. As, for instance, the Wilson Rest, which is not like the Harrison Rest, as you alleged, and no more copied from it than is the Rigid from the Wilson, and is immeasurably superior to both the others. This is but one example of many remembered by me. Almost every number

of the *Bulletin*, from its commencement, has contained examples of violent or insidious personal abuse. If the editor of the *Times* had not consistently stuck to the policy of a "brave silence," there would long ago have been a good deal more hot water than would have sufficed to thoroughly cleanse Nos 501 and 591, both from attic to basement. Apart from this habit of personality I have always admired the *Bulletin*, and its entire omission is the only thing wanting to perfect your "embroidure."

With clean illuminating "gas," and an honest "oven," both at your service,

I remain, gents,

Yours obediently,

W. J. BAKER.

APPENDIX.

I must now expressly disavow being, or having been, angry. It is not in me to feel inimical towards the meanest of my fellow-creatures.

If I could, sitting here in the quiet dusk and secrecy of the solemn evening, with a big stain of purple ink on the second finger of my right hand, by a cabalistic wave of that same hand cause the solid structure of No. 591 Broadway, with its whole internal contents to disappear forever from the sight of men, so that to-morrow its habitués should pass by the spot where it stood not knowing it, and seek without finding for all time—I would not wave. If, with my left hand, I could, by the touch of an electric wire, explode a thousand tons of nitroglycerin beneath that building, and at once hurl it and its busy industry into the limbo of unknown space—I would not hurl. If I should on the wide Atlantic meet, sailing far from land, in the tiniest of Berlin evaporating-bowls, the house, excursioning like those other three of Gotham, concerning whose mysterious fate the instructors of our childhood have left us in vague doubt, I would hold my breath, lest a rougher ripple than the gentlest of zephyrs can raise, should swamp so appropriate a craft.

But why exhaust the realm of conjecture? The best proof that I am not an open or concealed foe is, that on the morning of the 5th of December last I passed down Broad-

NEW STYLE FOLDING 'SCOPE.

way without stopping to swallow whole this building and its contents, when I might so easily, with one fell gulp, have forever removed all annoyances, and made my vengeance complete.

Not only did I forbear this, but like the gentlest of giants, passed in rubbers, that my muffled footfalls, mingling with the usual rumbling of the street, might not strike terror into the heart of the timidest occupant of 591, or cause his "tail" to curl between his legs. Another proof of my abstinence from evil passions is, that I did not stop the paper; on the contrary sought to renew my subscription. This will convince all who know anything about human nature.

But now I pause for a moment of contemplation, and to ask what is the ultimate significance of the return of that letter, which pure as Noah's weary dove fluttered back to my bosom? What is my sin that is so heavily visited on my head, and how long, how long must I stand, as did the Peri at the gates of Paradise, disconsolate and weeping? Will the *Bulletin* no more visit me, to cheer with those nice little high-toned flings? Must my hands forever crack and chap for lack of Dermoline? Can I nowhere purchase an adamant plate, or a baby charmer? Must I henceforth live in daily dread lest at any moment my best, because the cheapest, lenses refuse to work because not united to a success?

It is bearing down pretty hard on a man, isn't it? but may be I can get used to it in time—about a million years.

If the attentive reader who has followed me thus far now inquires for some "Billingsgate," I must excuse myself, and refer him to the *Bulletin*, as the other party furnish "such stuff." I trust in the next *Bulletin* of their health to read that "we" have continued to improve, and so far from being killed off are quite well. Indeed, if the sick ones can stomach their own medicine, they are in no danger from my comparatively homeopathic sugar pills, which are a very high trituration of their crude drugs.

With my best bow to all parties, &c., &c., &c.

W. J. BAKER.

SCHINDLER'S NEW SOFA IS BEAUTIFUL.

1776—1876.

Who is preparing for the Centennial? This is the question that is beginning to be asked, and it applies to photographers as much as to anybody. Indeed, there are none that should feel a greater interest in the matter. The art-science of photography is one of the youngest of the great discoveries of the nineteenth century; and surely no class of people have greater reason for pride and congratulation in the growth and development of their business than photographers. And oh! could the progressive and liberty-loving people of '76 look in upon that grand display, with what amazement would they dwell upon the new and wonderful things they would see, and probably nothing of all the great collection would be more interesting to them than photography. We feel interested in this matter, and mean to keep it before the fraternity. We want to do so for their interest as well as our own. We want it to be a mutual affair. We propose to supply photographers with the best of apparatus, and we hope and expect that it will help them to produce the best of work.

It is useless for photographers to expect to compete successfully with those that do the best work unless they have good lenses, good boxes, and everything that will work truthfully and correctly. Now is the time to begin to look into this matter, and see that you are prepared to do the best you are capable of, for the good work that is made now will keep till '76, and the more you have, the larger will be your collection to choose from.

**Examine Phenix Plate Co.'s Collodion
in the Patent Dreg Bottle.**

LOOKING AHEAD.

Now that the holidays have gone and we are fairly started on the new year, it becomes us to leave the past and strike out boldly for the year before us. This may be rather a quiet season among photographers; holiday work being over, and the effects of the panic not entirely past, it is just the time to look around and see where we are.

Examine the gallery and see if improvements can be made. There is no doubt there can be, in the way of cleaning up, rearranging specimens, printing new ones, and giving the whole place a renovating that will not only make it better adapted for business, but be also attractive to customers, making them feel that you are alive in your business, and mean to be up with the times in the order and cleanliness of the gallery, as well as in the freshness of styles and quality of work.

A little expense now will pay a large percentage before the end of the year. Clean carpets, clean walls, clean shelves, and a clean financial account, makes a man proud of his place; he takes pride in his work, and the public are not long in finding out that his gallery presents superior attractions, and is the place to go for superior work.

All this is something to look forward to and work for now. There is also something else to work for. The National Convention meets in Chicago in July, and every photographer who wishes to improve, or whose example might be of benefit to others, should begin *now* to prepare to exhibit or to go. There is nothing better to lift a man up and improve his work than to try for something of this kind, doing the very best he can. And still another inducement. The editor of the *Philadelphia Photographer* has offered "a gold medal for the best three cabinet-size portrait negatives, of one subject, which are sent him by April 15th, 1874." Here is something to work for, and we hope to hear of a host of competitors. Let no one hold back because he may think he will not do as well as somebody else. The benefit of the effort may be worth as much or more than the medal. Let us have a year of active, earnest work.

Use Slee's Roller for Mounting on Slee's Prepared Mounts.

REMEMBER, the American Optical Company's apparatus, Scovill Manufacturing Company, proprietors, was awarded the highest medal for extraordinary industrial merit, at the Vienna Exhibition.

THE CAMERA IN THE FIELD.

As the season will soon be upon us when the lovers of the beautiful in nature will delight to ramble "over hill and dale" in search of spots charming to the eye and inviting for the camera, it behooves such to be looking about them to see how well they are prepared for the spring campaign. There are so many attractions to this branch of photography, that it is coming to be almost a fascination. There is the exhilarating and romantic excursion in the fresh air and beautiful sunshine; the charm of communing with nature in her deep solitudes or from her towering peaks; the satisfaction of reproducing what you see by the beautiful process of photography; the admiration of friends or the public of your success; and then the almost endless enjoyment given by the stereoscope and magic lantern. All these have a tendency to invest landscape photography with a charm that is not possessed by any other department of the art.

Now, in order to work successfully, it is necessary to have everything adapted to what you expect to do. Second only to a knowledge of the business, is good reliable apparatus. And even for those who are not thorough, or use it as a pastime or recreation, good apparatus is all the more necessary, as their success is thereby much more certain.

Now, our purpose is to supply all that is necessary for an outfit for field work. We sell the Morrison wide-angle view lenses, which are constructed on strictly scientific principles. They embrace an angle of fully ninety degrees, and are absolutely free from distortion and flaw. Nos. 1 to 5 are all made in matched pairs for stereoscopic work. The shorter-focussed lenses are especially adapted for street and other views in confined situations. For general purposes, a pair of No. 5 lenses will be found most useful. Equipped with these, and a new Philadelphia box, the photographer will be prepared for stereoscopic or the popular 5 x 8 views, which are the size for the illustrations in the *Philadelphia Photographer*.

For any practical instructions in the de-

TRY BAKER'S PENCILLING VARNISH.

partment of field work, we would invite attention to the following extracts, which we make by permission of Messrs. Benerman & Wilson, from a work by one of the most successful of landscape photographers, entitled *Wilson's Landscape Studies*.

OUTDOOR PHOTOGRAPHY.

BY GEORGE WASHINGTON WILSON.

I will be glad if the circulation of my work in America can do my friends there any good. My success is due to care, and I have used the following formula for ten years :

Bath.—Ordinary 80-grain bath of nitrate of silver, without anything added to it, except about 4 grains of iodide of potassium to every 16 ounces.

Collodion.—As I never could make it to please myself, I always buy it from some respectable maker.

Glass.—In the long run, it is cheaper to have first quality glass, and I pay something extra to have it packed with a piece of paper between each plate, to prevent the surfaces being scratched during transit.

DEVELOPER.

Glacial Acetic Acid,	. . . . .	1 ounce.
Water,	. . . . .	16 "
Protosulphate of Iron,	. . . . .	15 to 30 grains
		to the ounce of solution.

The proportions require to be varied so much according to circumstances, that it is impossible to give them exact. With a little practice, one soon learns to regulate the strength of the iron and acid to suit the work in hand. In warm weather I dilute the developer immediately before using it; consequently can carry in one bottle as much as when diluted would make two.

Lenses.—I use for full-sized plates, a triplet of about 8-inch focus, a pair of view lenses, single meniscus, 8-inch focus, one pair 6-inch, one pair 4½-inch, one pair doublets, 3½-inch, and one pair doublets, 2½-inch.

Exposure, &c.—If it is a subject we are attempting which can be taken instantaneously, I use my six-inch focus lenses with a five-eighth inch stop, and expose by removing and replacing the cap of the lens as quickly as possible; but if it is a subject requiring a long exposure, I make a guess for

the first plate, and, from long habit, generally succeed in hitting it pretty exactly.

Some days when, owing to the variation of the intensity of the light on the amount of shadow in the views, I have begun in the morning with an exposure of ten seconds, I have ended in the afternoon with one of three minutes, without losing a plate from either over or under exposure during the day. In spring the actinic property of light appears to be very active, and it is only then that I have succeeded in getting passable instantaneous pictures. Early in the season, views of buildings may be taken with a small stop, in from two to ten seconds, and landscapes, with trees, in from five to fifteen seconds; but by the month of August and September, I find from thirty to sixty-six seconds are required for most landscape views, and instantaneous exposures are of no use except for clouds and water only.

The plate being exposed, I get myself shut up in the tent, and develop in the usual way, by dashing on the solution as quickly as possible, and moving about the plate to prevent stains. If it is an instantaneous view, all the details should come up slowly and distinctly; but I keep on moving the plate for two or three minutes, so as to get all that I can up before washing off the developer. This I do carefully and slowly, and as the negative, in this stage, is very thin in deposit, I pour from my dropping-bottle a small stream of nitrate of silver along the side of the plate, and let it flow over the whole surface, before dashing on a fresh dose of developing solution, keeping the plate moving as usual. When this has acted for a minute or so, I wash it off again very carefully, and repeat the process, sometimes three or four times, if necessary, until the requisite printing density is attained; then after a slight washing, I bring it outside the tent, wash thoroughly, and fix with cyanide of potassium.

If the plate has had a long exposure, with a small stop, I find one redevelopment generally enough, but if my plate looks too thin after fixing, I sometimes take it into the tent and redevelop a second time. The cyanide, however, must be well washed off, otherwise there is danger of getting a reddish deposit upon the shadows.

LIESEGANG'S ALBUMEN PAPER WE SELL.

Printing.—I am not aware that there is anything peculiar in my printing operations, but I may mention that I use what some people consider a weak bath: twenty-five to thirty-five grains of nitrate of silver to the ounce of water, and the solution made neutral with a few drops of ammonia. After the prints are fixed in hyposulphite of soda, they are put up in bundles of about fifty, and subjected to the pressure of a machine acting on the principle of a screw-press, which squeezes most of the liquid out of them. They are then washed by throwing them separately from one dish of clean water into another, several times, and again subjected to pressure; and I believe that, after a few repetitions of this process, they are as free from hyposulphite of soda as it is possible for prints to be, but I generally allow them to swell in porcelain dishes, with siphons, which empty and fill mechanically all night.

ABERDEEN, SCOTLAND.

Ask for Scoovill's Union Goods, and other articles.

THE NATURE OF SUNLIGHT.

DR. DRAPER, of New York, has lately published a summary of the views respecting the activity of the rays of the sun, that have long been held by him, and which are now probably almost universally accepted by scientific men, although the elementary text-books on this subject have not yet been divested of the somewhat inaccurate expressions of thirty years ago, which latter also continue to be used by photographers and most practical men.

According to Dr. Draper, the calorific, luminous, and chemical effects produced by the solar rays are not so many distinct forces or emanations coexisting in a beam of light, and that can be dispersed by a prism, according to a fixed law, over the length of the spectrum, but are, on the contrary, only the various effects of one and the same force acting under different conditions and upon different substances. He maintains (1) that the chemical action is not limited to the more refrangible rays, but is equally distributed over the luminous

and the calorific portions of the spectrum; (2) that the ray effective in producing chemical or molecular changes in any special substance is determined by the absorptive power of that substance; (3) that there is also no special localization of the visual or the thermal effects.

In the case of the silver iodide so generally used by photographers, Draper shows that the more refrangible rays produce an effect contrary to that produced by the less refrangible. In the case of the bitumens and resins, he shows that a properly prepared film of these is as sensitive to either the ultra red or the ultra violet rays as the silver iodide is to the latter rays only.

In the highly important case of the development of the carbonic acid gas found in the atmosphere by the action of sunlight on plants, he shows that this is accomplished by the action of the rays between the orange and the green bands of the spectrum, the maximum effect being in the yellow. The vegetable colors and the colors of flowers, are shown to be dependent each upon the chemical action of a corresponding specific ray or rays. The union of chlorine and hydrogen goes on under the influence of every ray of the spectrum, but with greatest rapidity in the violet. The effects of light on chlorophyl show that the vegetable colors are destroyed by rays complementary to those that have produced them.

The second of the above propositions is supported by the observations on the decomposition of the silver iodide, in relation to which Dr. Draper develops a fact of much interest to photographers, i. e., that the ordinary collodion film absorbs only about one-fourth of the whole actinic effect of the rays falling upon it; the rest passes through and is lost. Could the film be made to absorb the whole, its sensitiveness would be correspondingly increased.

The second proposition is especially supported by the direct experiments with chlorine and hydrogen. The solar rays having passed through a layer of chlorine, are unable to cause the combination of a mixture of hydrogen and chlorine on which they are allowed to fall; without the intercepting layer of chlorine, the solar rays cause the immediate combination of the two

Try POULENCE & WITTMANN'S FRENCH GUN-COTTON.

gases. Further experiments with absorbing media show that the more refrangible rays are the ones effective in causing the union of chlorine and hydrogen, and that, furthermore, the rays that are specially effective are those corresponding to the bands common to the spectra of the two gases. The process of union begins after the lapse of a certain time, during which the rays, entering the mixture, have been acting upon it to prepare it for the subsequent union. The actual union is a progressive phenomenon, the rapidity of which increases with the intensity and quantity of light.

The action of light on the chlorine compounds of silver is precisely similar to that on the compounds with hydrogen, and "there is to practical photographers an advantage, both as respects time and correctness, in light and shade gained by submitting a sensitive surface to a brief exposure in a dim light, so as to pass it through its preliminary stage."—*Exchange*.

Try the Vienna Albumen Paper, put up in half-ream boxes.

WHAT ARE THE FACTS? THE MEDALS AT VIENNA.

A GREAT deal of effort having been made by interested parties to *dilute* the value of our Vienna medal, and the statement having been made that our goods were received after the awards were made, we think our readers will be interested to know *what are the facts*; so we give below a letter just received from Dr. Vogel, the secretary of the jury, which gives the facts, and which must prevent any further envious croaking about the matter:

BERLIN, Jan. 1st, 1874.

SCOVILL MANUFACTURING CO.,
New York.

GENTLEMEN: I read in the American newspapers, again and again, false statements concerning the awards of medals made at Vienna, and especially concerning the one awarded to you. It is also stated that your goods arrived at Vienna after the awards were made, &c., &c. I feel myself

obliged to declare that *this assertion is not true*.

The making of the awards was closed during the first days of August, 1873. *Your goods had already been examined in the middle of July, and my official statement of the awards to Americans, sent from Vienna July 28th, which was published in the October issue of the Philadelphia Photographer* (the early issue of the September number preventing its issue then), *contains already the name of your firm. Your medal was awarded for the excellence of your cameras and stands, and I mention that your Perfect Camera-stand, with the simple and practical snake-screw, and your Camera Boxes, with the convenient manner for inclining the swing-back, were the first of this style exhibited in Europe!*

Respectfully yours,

H. VOGEL, PH D.,
Secretary of the Photographic Section
of the Vienna Jury.

LITTLE GRAINS OF SILVER.

PROVIDENCE, R. I., Jan. 2d, 1874.

WILSON, HOOD & CO.

GENTS: The 20 x 24 view-box you sent me is the handsomest and best made camera-box that I ever saw of American make.

Respectfully, your ob't servant,

F. HACKER.

YONKERS, Jan. 5th, 1874.

MR. C. MCCARTY,

With Scovill Manufacturing Co.

DEAR SIR: The Peerless Lens which I bought of you is very satisfactory. It is a very quick worker, and for that reason particularly adapted to imperial cards of children.

Yours, truly,

H. S. WYER.

LIESEGANG'S ALBUMEN PAPER—It is some four months now since we introduced this valuable paper into the American market, and since then it has been steadily growing into favor. It is easily worked by any good formula, and produces exquisite tones. It is in use by the principal photographers of Europe, such as the London Stereoscopic Company, Mr. Ch. Reutlinger, of Paris, &c., and the manufacturer, who is one of the most skilled men

TRY BIGELOW'S OIL-PAINTED BACKGROUND.

by Mr. Bigelow, and he has made us his trade agents for them. Every live photographer will at once secure a stock of them.

GLACÉ GOODS.—Scovill Manufacturing Company are prepared to supply all the requisites for this brilliant process as follows:

Collodion,	per pound, \$1 50
Gun-Cotton,	per ounce, 50
Best White Gelatin, . .	per pound, 1 50

Cases in velvet, morocco, etc., in great variety.

Cameo Dies, of the most approved style, at the following prices, viz.:

Card Oval,	\$4 00
Imperial Oval,	8 00
Imperial Arch Top,	8 00
5 x 7 Oval,	12 00
5 x 7 Double Elliptic,	12 00
8 x 10 " "	18 00
8 x 10 Oval,	18 00

THE GRAPHITE NEGATIVE PROCESS.—Also please notice that we have *all* articles required for the "Graphite Process."

To make a negative from a negative.

To intensify a common negative.

To make a positive from a negative.

To make a diffused image on the back of an ordinary negative for softening the prints instead of retouching the negative, etc., etc. Send for a circular.

PURE CHEMICALS.—We desire once more to call the attention of our readers to the fact that we are making extensive preparations—manufacturing, etc.,—to introduce a new and superior grade of photographic chemicals, pure and unadulterated. A full list of them, with prices, shortly.

TRAPP'S SIPHON PUMPS, *all sizes,* are reduced to the one uniform price of \$10 each. Who would not have a clean siphon when the price is so *dirt cheap*?

OBITUARY.

It is with regret that we announce the death of Mr. Charles H. Williamson, the well-known photographer of Brooklyn, which took place on Thursday, October 22d.

Mr. Williamson was one of the early daguerreotypers, and won an enviable distinction in his profession. He leaves a wife and two children, who have the warmest sympathy of the fraternity and a host of personal friends. We clip the following from the *Brooklyn Union* of Friday, October 23d:

"By the death of Charles H. Williamson the photographers of this city and, indeed, of the United States, have lost one of their most able associates in the profession. Mr. Williamson, after a somewhat severe illness of about ten days, passed away yesterday. The immediate cause of his death was congestion of the brain. Deceased learned the profession of photography at Springfield, Mass. Subsequently, in 1851, he came to Brooklyn, and opened a gallery adjoining the one he occupied at the time of his death. He was one of the earliest picture-takers in Brooklyn, when they were produced by what was then known as the daguerreotype system. Since then many improvements have been made in the art, and Mr. Williamson was not slow to take advantage of them. He was an excellent painter in water-colors, and many of the finest miniatures in his studio were finished by him. Several new styles of pictures originated with him, notably the cameo style. He introduced a system of teaching drawing from the transparent positive which has been found of great advantage to beginners in drawing. A few days before he was taken sick he was engaged on an invention for graying the background of pictures. He was an original member of the Brooklyn Photographic Art Association, and at its meetings read several papers on subjects relating to the profession. He was also a contributor to the *Photographic Times*, and other periodicals devoted to photography. One of the last pictures taken by deceased was ex-District Attorney Morris.

"Mr. Williamson was born in Scotland in 1826. The funeral took place the Sunday following his demise, from the Church of the Holy Trinity, and the services were conducted by Rev. Dr. Hall. Dr. Hall and Mr. Williamson were quite friendly, and it was by the invitation of the deceased that Dr. Hall became President of the Brooklyn Photographic Art Association."

THE EAGLE PLATE IS UNEQUALLED.

CARMAN PEASELL,
MANUFACTURER
FOR THE TRADE ONLY.
STEREOSCOPES,

Of the Finest Workmanship, fitted with the best
FRENCH LENSES.

Trial Orders solicited from Jobbers only, and Satisfaction Guaranteed.

WALNUT AND ROSEWOOD PEDESTALS

Always on hand at bottom figures.

CARMAN PEASELL,
119 & 121 Freeman Street,
W. H. ST. JOHN, Agent for the Sales. GREENPOINT, N. Y.

E. WEISKOPF, MANUFACTURER OF OPTICAL LENSES,

No. 182 CENTRE STREET,

(UP STAIRS)

Cor. Hester Street, NEW YORK.

CAUTION.

THE PUBLIC ARE HEREBY NOTIFIED THAT THE

PHILADELPHIA CARTE ENVELOPE,

Manufactured by Nixon & Stokes, Philadelphia, and sold by the regular stockhouses (who will not deal in contraband goods), is the only Carte Envelope that is patented.

ALL OTHERS ARE AN INFRINGEMENT

and parties buying, selling, or using them will be dealt with according to law.

We warn the trade against buying Carte or Picture Envelopes of travellers who are not connected with the regular stockhouses.

NIXON & STOKES,
No. 2400 VINE STREET, PHILADELPHIA.

PHILADELPHIA CARD ENVELOPE

This popular Envelope is now made of a variety of shapes and sizes, to suit all classes of Cabinet, Victoria, and Carte Photographs, and Ferrotypes.

Excellent Cap Paper of various tints is used, and the openings are oval arch top, embossed and gilt.

Their manufacture is secured by letters patent, and ALL OTHERS ARE INFRINGEMENTS.

PHILADELPHIA

Carte

ENVELOPES.



PHILADELPHIA

Carte

ENVELOPES.

MILLIONS OF THEM ARE SOLD ANNUALLY,

And they are the safest envelope for mailing, the most beautiful to deliver pictures in, and, when the flap is turned back (*see cut*), they form an elegant stand for the picture.

Specimens will be supplied by any dealer in the country, with prices. They are sold in large quantities and kept constantly in stock, by

SCOVILL MANUFACTURING CO., *New York.*
E. & H. T. ANTHONY, *New York.*
WM. B. HOLMES, *New York.*
C. W. STEVENS, *Chicago.*

BENJ. FRENCH & CO., *Boston.*
GEO. S. BRYANT & CO., *Boston.*
DODGE, COLLIER & PERKINS, *Boston.*
F. HENDRICKS, *Syracuse, N. Y.*

WILSON, HOOD & CO., *Philadelphia.*

A. M. COLLINS, SON & CO.,
Photographic Card Warehouse,

18 S. Sixth St., and No. 9 Decatur St.,

PHILADELPHIA.

Our New Styles of Photograph Cards recently introduced embrace :

No. 42 CARD AND CABINET MOUNTS, Enameled Backs and Unenameled Face, in eight colors.

No. 33 CARD MOUNTS, six colors, with a delicate Gilt or Red Border on the edge of card.

FAWN, STEEL GRAY, AND GERMAN BLUE CARD AND CABINET MOUNTS.

THICK, GILT, BEVELED-EDGE GLACE CARDS, Black and Rose Tint, of the following sizes : Card, Cabinet, $6\frac{1}{2} \times 8\frac{1}{2}$, 8×10 , $8\frac{3}{4} \times 11\frac{1}{4}$, 10×12 , 11×14 , $12 \times 15\frac{1}{8}$.

GLACE CARD BOXES of the above sizes.

THIN, GILT BEVELED-EDGE CARD AND CABINET MOUNTS, in White, Rose Tint, and Black.

SPECIALTIES:

WHITE AND LIGHT BUFF CARDS, for Groups of 3, 4, 5, 6, 7, and 8, Oval and Square Openings.

FITZGIBBON'S PATENT ADHESIVE FERROTYPE MOUNTS.

SLEE BROS.' PREPARED CARD MOUNTS.

manufactured a quantity of these metallic bars, bent in the form of a U, of half an inch in thickness. This will obviate the necessity of adding any acid after the silver is precipitated to dissolve any metal which might have become detached, as was frequently the case when thin sheet zinc was used. All that is necessary with one of these bars to purify your bath, is to place the bath in a suitable vessel, put the bar into it, with a string attached for convenience of removing it. In twenty or thirty minutes the silver will be all precipitated; not one grain need be lost. Two or three washings, and dissolving with nitric acid, reducing to the strength you require with distilled water.

MATTERS OF THE MONTH.

THE WHISKY WAR.—We are indebted to Mr. F. S. Crowell, Mt. Vernon, Ohio, for a series of interesting stereos representing scenes in the "whisky war" in Ohio, made from negatives "taken on the spot."

MOULTON'S RAPID PHOTOGRAPH WASH-ER.—We are glad to announce that arrangements are pending, whereby it is expected that Scovill Manufacturing Company shall become trade agents for this splendid machine. More anon.

FOR SALE.—Two camera boxes $\frac{1}{2}$ and $\frac{3}{4}$ sizes; Harrison's $\frac{1}{4}$ portrait lens; new tent used for travelling and dark-room; 5 x 7 porcelain bath and dipper; 5 x 7 rubber bath; 8 x 10 porcelain flat dish; tripod stand; Anderson's Skylight and Dark-room book; drying stove; round Bigelow's background; acid hydrometer; one gross $\frac{1}{4}$ size Phenix plates and $\frac{1}{4}$ size; and other traps used in photography for sale cheap. For price, address

GEORGE WILLIAMS,
221 Summer Ave., Newark, N. J.

KILBURN BROS.' VIEWS.—We have received from Messrs. Kilburn Bros., Littleton, N. H., a series of ice views illustrating Mr. Lowell's beautiful poem of the "Vision of Sir Launfaul;" twelve splendid pictures that must have a large sale. It is one of the prettiest ideas one ever knew to illustrate a poem in this way, and well worthy of the attention of landscape photographers. We also have from the same gentlemen a number of stereographs of Saratoga and of the views in Mexico recently made. The fact that the Kilburn Bros. have just occupied the largest establishment in the world devoted to landscape photography, is evidence that their superior work is appreciated by the public, and we wish them continued prosperity.

CARMAN PEASELL,

MANUFACTURER

FOR THE TRADE ONLY.

STEREOSCOPES,

Of the Finest Workmanship, fitted with the best

FRENCH LENSES.

Trial Orders solicited from Jobbers only, and Satisfaction Guaranteed.

WALNUT AND ROSEWOOD PEDESTALS

Always on hand at bottom figures.

CARMAN PEASELL,

119 & 121 Freeman Street,

W. H. ST. JOHN, Agent for the Sales.

GREENPOINT, N. Y.

A FULL SUPPLY
OF
HANCE'S PHOTOGRAPHIC SPECIALTIES,
BIGELOW'S BACKGROUNDS,
BIGELOW'S ALBUM OF LIGHTING AND POSING,
ANDERSON'S PHOTO-COMIC ALLMYKNACK,
AND BENERMAN & WILSON'S PUBLICATIONS,
AT THE
BUFFALO
PHOTOGRAPHIC WAREHOUSE



Nos. 292, 294 & 296 MAIN STREET,

DEALERS IN EVERY VARIETY OF

PHOTOGRAPHIC MATERIALS,

AND THE MOST DESIRED STYLES OF

OVAL AND SQUARE FRAMES,

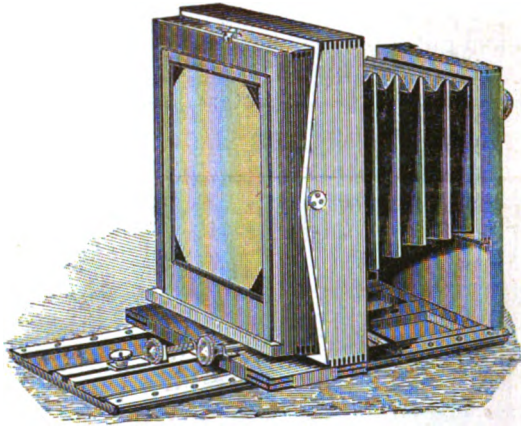
Gilt, Black Walnut, and Rosewood and Gilt Mouldings.

CAMERAS AND APPARATUS IN GREAT VARIETY.

ALL GOODS SOLD AT LOWEST MARKET PRICES.

DAVID TUCKER & CO.

The American Optical Company's
APPARATUS,
SCOVILL MANUFACTURING CO., Manufacturers,
419 & 421 Broome St., New York.



INSIDE, OUTSIDE, AND THROUGHOUT, THE AMERICAN OPTICAL COMPANY'S APPARATUS IS

UNDENIABLY THE BEST!

And has been so decided repeatedly at Fairs and Exhibitions; and, better still, by the thousands of photographers who use it all over North and South America, and even in Europe.

A COMPLETE CATALOGUE of this Apparatus will be issued soon. Duplicate copies supplied gratis. The list covers

Apparatus of all kinds,
Harrison Portrait Lenses,
The Unequalled Globe Lenses,
The Celebrated Ratio Lenses.

Photographers desiring to examine the merits of these goods will find them kept on hand by every stockdealer in the country.

ALL FIRST-QUALITY BOXES ARE SUPPLIED WITH SOLID GLASS CORNERS
IN THE HOLDERS, WITHOUT EXTRA CHARGE.

SCOVILL MANUFACTURING COMPANY, New York.

E. WEISKOPF, MANUFACTURER OF OPTICAL LENSES,

No. 182 CENTRE STREET,

(UP STAIRS)

Cor. Hester Street,

NEW YORK.

THE PHENIX PLATES OVER ALL!

The Phenix Plates have won over the best Ferrotypes in the land, and are constantly receiving more and more praise. They are UNEQUALLED.

PRICE LIST—PER BOX.

SIZES,	1-9	1-6	1-4	4¼x6½	1-3	4½x10	4-4	5x7	7x10	8x10	10x14
											Per Sheet.
EGGSHELL,	\$0.80	\$1.25	\$1.85	\$1.85	\$2.20	\$2.20	\$2.40	\$2.40	\$2.70	\$2.70	\$0.17
GLOSSY,	90	1.35	2.00	2.00	2.35	2.35	2.70	2.70	2.90	2.90	18

PHENIX PLATE CO.—Scovill Mfg. Co., Agents, 419 & 421 Broome St., N. Y.

CHAMPION PLATE—Black or Chocolate-Tinted.

10 x 14, Eggshell, per box, 200 plates,	. . . . .	\$24 00
10 x 14, Glossy, " 200 "	. . . . .	26 00

SCOVILL MFG. CO., 419 & 421 Broome St., N. Y.

CAUTION.

THE PUBLIC ARE HEREBY NOTIFIED THAT THE

PHILADELPHIA CARTE ENVELOPE,

Manufactured by Nixon & Stokes, Philadelphia, and sold by the regular stockhouses (who will not deal in contraband goods), is the only Carte Envelope that is patented.

ALL OTHERS ARE AN INFRINGEMENT

and parties buying, selling, or using them will be dealt with according to law.

We warn the trade against buying Carte or Picture Envelopes of travellers who are not connected with the regular stockhouses.

NIXON & STOKES,

No. 2400 VINE STREET, PHILADELPHIA.

151

THE GREAT

National Photographic Emporium,

No. 46 North Charles Street,

BALTIMORE, MD.,

THE MOST COMPLETE AND BEST REGULATED STOCKHOUSE
IN AMERICA,

FURNISHING

EVERYTHING PERTAINING TO PHOTOGRAPHY

OF THE FINEST AND BEST QUALITY,

AT THE LOWEST MARKET RATES.

A SPECIAL DISCOUNT SYSTEM,

AN IMPORTANT FEATURE TO CASH BUYERS.

Send for the New Price List, Illustrated, gratis on application.

“The Photographer’s Friend,”

Published by this thriving Emporium, is issued for 1874 as a

BI-MONTHLY PHOTOGRAPHIC MAGAZINE,

And will excel in practical instruction and beautiful illustrations all the previous efforts.

Terms, \$2.50 per annum, in advance.

A. M. COLLINS, SON & CO.,
Photographic Card Warehouse,

18 S. Sixth St., and No. 9 Decatur St.,

PHILADELPHIA.

We have recently made the following additions to our Stock:

AN ASSORTMENT OF WHITE AND LIGHT BUFF CARDS,
8 x 10, 10 x 12, and 11 x 14, with OVAL AND SQUARE CARD-SIZE
OPENINGS, designed to furnish a cheap and convenient means of
mounting photographs in groups of 3, 4, 5, 6, 7, and 8.

A LINE OF LOW-PRICED CARD MOUNTS. No. 28, Light and
Dark Buff, Enameled. No. 40, Light and Dark Buff, not Enameled.

BEVELED, GILT-EDGE, CARD AND CABINET MOUNTS, Black
and Rose Tint.

BON-TON CARDS. Nos. 12 & 13, with OVAL AND ARCH-TOP OPENINGS.

FITZGIBBON'S PATENT ADHESIVE FERROTYPE MOUNTS.
Nos. 3, 4, 5 & 6, OVAL OPENINGS; Nos. 9 & 10, ARCH-TOP OPENINGS,
\$3.25 per 1000; No. 12 OVAL AND ARCH-TOP OPENINGS, \$4.37 per 1000.

WE INVITE ATTENTION TO THE FOLLOWING:

"It gives us pleasure to speak of Fitzgibbon's Patent Adhesive Mounts for Ferrotypes and Gem Pictures. We cannot recommend them too highly to the fraternity having already disposed of over 100,000 of them, and the cry is still for more. Our numerous friends and customers that have tried and now use them, say they are just the thing that has long been needed, for now they have ready at hand a perfect Ferrotype mount that saves much time and labor. Please send us 20,000 more of different numbers, as per enclosed order"—GATCHELL & HYATT, St. Louis, February 4, 1874.

THE MOST POPULAR **PHOTOGRAPHIC STOCK-HOUSE** IN THE UNITED STATES.

Publisher Western Photographic News.

SUBSCRIPTION PRICE, \$1.00 PER YEAR.

PHOTOGRAPHERS' SUPPLIES.

PURE CHEMICALS
A SPECIALTY.

CHAS. W. STEVENS
158
STATE ST.,
CHICAGO.

"GREAT CENTRAL."

LARGEST STOCK
IN THE WEST.

SEND YOUR ORDERS to the "GREAT CENTRAL,"

AND HAVE THEM FILLED

PROMPTLY, WITH BEST GOODS, AT LOWEST PRICES.

Attention!

We are informed that some of our competitors are advancing the prices of

Photographic Goods,

And we have been requested to do the same, but have declined to enter into any *combination* whatever. Photographers can rest assured that we shall adhere strictly to our **LOW PRICES**, as published in our *Catalogue of August, 1873*, until further notice. The prices therein quoted are the *lowest yet made*, and all who have not received that list will please send us their address, when it will be promptly forwarded. Note our very low prices on

FERROTYPE PLATES, CAMERA BOXES, etc.

Everything sold at bottom figures, and all orders executed to the letter, and with the greatest of promptness. Agents for the Northwest for

WESTON'S ROTARY BURNISHERS, WOODWARD'S SOLAR CAMERAS, And SCOTCH ALBUMEN PAPER.

We hope all those who have not tried the Scotch Albumen Paper, will give it a trial, as it is giving universal satisfaction, and is having an immense sale. We have it in White and Pink.

Prices furnished on application for Woodward's Solar Cameras, either the Reflectors or Direct Printers, with license attached. Any one desiring a license for the use of Solar Cameras, can get the same of us at the price charged by Mr. Woodward, \$40.00.

Don't forget to order a Weston Burnisher; we are selling large numbers of them, and the fine effect produced from their use is commending itself to all.

Remember we carry the **LARGEST STOCK IN THE WEST**, and owning the land and the building we occupy, we are fully prepared to give you *rock bottom prices* on everything.

RICE & THOMPSON'S MAMMOTH STOCK-HOUSE, 259 Wabash Avenue, CHICAGO.

Laurent's Filters

READY FOLDED.

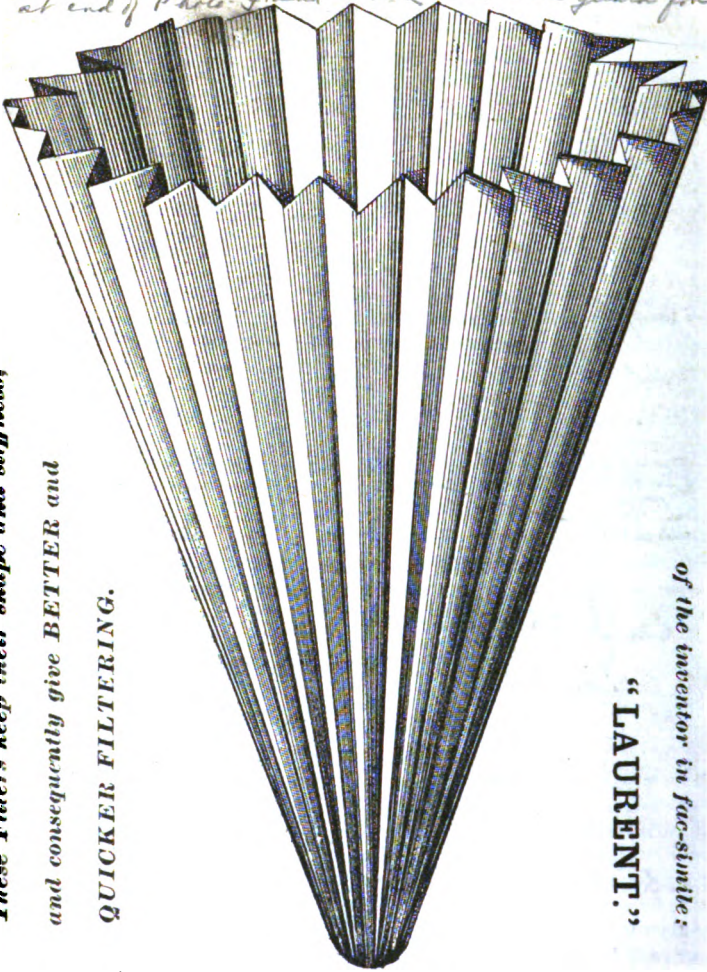
This set of 4 - pre-cut and about 1/2 inch wide to be used at end of Photo-Friend and also long guard for housing No.

Made of the best Filtering Papers, folded by machinery.

These Filters keep their shape and stiffness,

and consequently give BETTER and

QUICKER FILTERING.



No waste of paper! Saving of time! No annoyance to operators! Original Packages bear the name

of the inventor in fac-simile:

"LAURENT."

Per package of					Per package of				
No. 1 (old No. 15)	20 small (5 each),	being 100 Filters,	for 37 cts. per pkg.		5 small,	8 cts.			
" 2 "	19-20 "	" " " 100 "	" " 40 "	" " 5 "	" 4 "				
" 8 "	25-20 "	" " " 100 "	" " 48 "	" " 5 "	" 5 "				
" 4 "	33-20 "	" " " 100 "	" " 65 "	" " 5 "	" 7 "				
" 5 "	40-20 "	" " " 100 "	" " 80 "	" " 5 "	" 8 "				
" 7 "	50-20 "	" " " 100 "	" " 100 "	" " 5 "	" 10 "				

FOR SALE BY ALL DEALERS IN

PHOTOGRAPHIC STOCK.

"LET THERE BE LIGHT."

1874.

PROSPECTUS.

Vol. 4.

The Photographer's Friend

A First Class Bi-Monthly Magazine, Devoted to the Photographic Art.

The "Photographer's Friend" enters in this its fourth year fully established and duly acknowledged as the "Friend" and favorite of the Photographic Fraternity. During the year it will most emphatically be conducted in such a manner that it will fully maintain the high character and popularity which is already bestowed upon it by an appreciative public. It has stood well the test, and its Reputation for Excellence is surpassed by none of its contemporaries.

As a Reliable Magazine of Useful and thoroughly Practical Information to the earnest working photographer, it is invaluable; comprising as it does all those characteristics which adapt it to their wants.

The Photographic Productions which illustrate each number are from the studios of the most eminent Photographic Artists, in this country and Europe, which alone are worth more than the subscription price.

Our facilities for securing all the latest news and novelties pertaining to the Art, is equal if not superior to that of any other publishers in the United States.

The Friend commences its fourth year of publication with more brilliant prospects than ever, having perfect confidence in the intelligence of the fraternity to recognize its claims as their champion and standard bearer of practical information. We have, we trust, ample evidence that our efforts in behalf of Photography and Photographers is fully appreciated, and that we will be sustained and patronized as our merits may deserve.

The Friend will always contain the latest practical information from all parts of the world, and each number will contain a handsome photographic production, in every way a suitable photographic study. It will fearlessly expose all humbugs and frauds as heretofore: boldly upholding the truth at all times and under all circumstances. In discussing the merits of any improvement or anything pertaining to the art, it will be influenced by the merits alone. It shall always be so conducted that it shall *invariably* be what its title indicates, the "Photographer's Friend." Our sources for deriving information are excellent. Our large wholesale department brings us all novelties, &c., as soon as in the market. Our excellent studio affords us an opportunity of knowing from actual practical experiment whether all the numerous processes, dodges, &c., are worthy, or will secure certain results claimed or not. We are in constant correspondence with prominent Photographers throughout the world, together with all the Photographic journals published in any country, which we regularly receive, affording us opportunities for securing valuable and practical information, second to no other kindred establishment anywhere. To those who advertise and appreciate real photographic literature, we do not hesitate to state we are confident that they will find the Photographer's Friend indispensable and just suited to their wants.

OUR TERMS FOR 1874.

Single subscriptions for the year \$2.50 invariably in advance. Single subscriptions for six months \$1.25 invariably in advance. Single copies 50 cents each.

CLUB RATES.

Any Photographer forwarding one additional subscription with his own, two copies will be sent for one year for \$4.50. Two (2) additional subscribers with his own one year, the three for \$6.00.

All clubs of three and over, if sent at the same time, \$2.00 each. After a club of over three has been once sent, additional names may be added by the originator of the club at \$2.00 each. In forming clubs they need not be confined to any one address, but the Friend will be sent to any address desired. By this plan many may soon obtain enough subscribers to secure their own subscription free.

We trust that each one of our old subscribers will again be with us, and each and every one send a name with theirs. The more we are encouraged the better we can labor for the interests of the profession.

Traveling Photographers are supplied with a "coupon" receipt, which will allow them to receive the Friend wherever they may be located at the time of issue as regularly as those who are located permanently. By this new and original plan, all photographers may take the Friend.

TERMS FOR ADVERTISING.

	Per Issue.	Per Annum.		Per Issue.	Per Annum.
One Page.....	\$10 00	.....\$45 00	Quarter Page	\$4 00	.....\$18 00
Half ".....	6 50	..... 30 00			

RATES IN DEPARTMENT OF SPECIALTIES.

For each Line Small Type.....15 cents | For each Line in Capitals,.....25 cents.

To those desiring positions as Operators, Printers, or other Photographic employment, card and address inserted FREE.

THE EXCHANGE COLUMN.

This column will be devoted to exchanges only. No charges will be made for inserting these notices, when articles are offered in exchange for other photographic goods. Articles offered for sale will be inserted in the Advertisement Department at our regular rates, 15 cents per line.

The Specialty Department offers the best opportunity for those desiring to purchase, sell or exchange, also for those desiring to employ or to gain employment, and for special reading advertisements. All advertisements and articles intended for publication, must reach us before the 10th of each month preceding our issue.

Address all communications in relation to the Friend, to

RICHARD WALZL,

46 N. Charles St., Balto., Md.

Laurent's Filters

READY FOLDED.

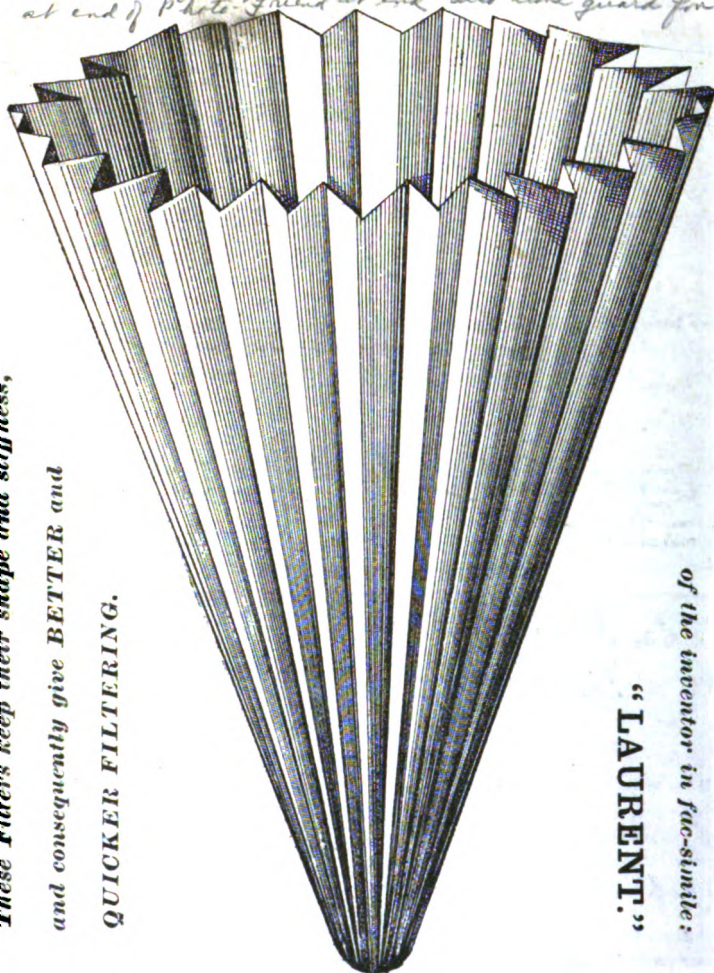
(Then place on set of 1/4 - quartered about photographic lenses to be used at end of photo. Guard at end also band guard for housing no.)

Made of the best Filtering Papers, folded by machinery.

These Filters keep their shape and stiffness,

and consequently give BETTER and

QUICKER FILTERING.



No waste of paper! Saving of time! No annoyance to operators! Original Packages bear the name

of the inventor in fac-simile:

"LAURENT."

Per package of						Per package of					
No. 1 (old No. 15)—20 small (5 each), being 100 Filters, for 37 cts. per pkg.						5 small, 8 cts.					
" 2 "	19—20	" "	" 100	" "	" 40 "	" 5 "	" 4 "				
" 3 "	25—20	" "	" 100	" "	" 48 "	" 5 "	" 5 "				
" 4 "	33—20	" "	" 100	" "	" 65 "	" 5 "	" 7 "				
" 5 "	40—20	" "	" 100	" "	" 80 "	" 5 "	" 8 "				
" 7 "	50—20	" "	" 100	" "	" 100 "	" 5 "	" 10 "				

FOR SALE BY ALL DEALERS IN

PHOTOGRAPHIC STOCK.

"LET THERE BE LIGHT."

1874.

PROSPECTUS.

Vol. 4.

The Photographer's Friend

A First Class Bi-Monthly Magazine, Devoted to the Photographic Art.

The "Photographer's Friend" enters in this its fourth year fully established and duly acknowledged as the "Friend" and favorite of the Photographic Fraternity. During the year it will most emphatically be conducted in such a manner that it will fully maintain the high character and popularity which is already bestowed upon it by an appreciative public. It has stood well the test, and its Reputation for Excellence is surpassed by none of its contemporaries.

As a Reliable Magazine of Useful and thoroughly Practical Information to the earnest working photographer, it is invaluable; comprising as it does all those characteristics which adapt it to their wants.

The Photographic Productions which illustrate each number are from the studios of the most eminent Photographic Artists, in this country and Europe, which alone are worth more than the subscription price. Our facilities for securing all the latest news and novelties pertaining to the Art, is equal if not superior to that of any other publishers in the United States.

The Friend commences its fourth year of publication with more brilliant prospects than ever, having perfect confidence in the intelligence of the fraternity to recognize its claims as their champion and standard bearer of practical information. We have, we trust, ample evidence that our efforts in behalf of Photography and Photographers is fully appreciated, and that we will be sustained and patronized as our merits may deserve.

The Friend will always contain the latest practical information from all parts of the world, and each number will contain a handsome photographic production, in every way a suitable photographic study. It will fearlessly expose all humbugs and frauds as heretofore: boldly upholding the truth at all times and under all circumstances. In discussing the merits of any improvement or anything pertaining to the art, it will be influenced by the merits alone. It shall always be so conducted that it shall *ind-ud* be what its title indicates, the "Photographer's Friend." Our sources for deriving information are excellent. Our large wholesale department brings us all novelties, &c., as soon as in the market. Our excellent studio affords us an opportunity of knowing from actual practical experiment whether all the numerous processes, dodges, &c., are worthy, or will secure certain results claimed or not. We are in constant correspondence with prominent Photographers throughout the world, together with all the Photographic journals published in any country, which we regularly receive, affording us opportunities for securing valuable and practical information, second to no other kindred establishment anywhere. To those who advertise and appreciate real photographic literature, we do not hesitate to state we are confident that they will find the Photographer's Friend indispensable and just suited to their wants.

OUR TERMS FOR 1874.

Single subscriptions for the year \$2.50 invariably in advance. Single subscriptions for six months \$1.25 invariably in advance. Single copies 50 cents each.

CLUB RATES.

Any Photographer forwarding one additional subscription with his own, two copies will be sent for one year for \$4.50. Two (2) additional subscribers with his own one year, the three for \$6.00.

All clubs of three and over, if sent at the same time, \$2.00 each. After a club of over three has been once sent, additional names may be added by the originator of the club at \$2.00 each. In forming clubs they need not be confined to any one address, but the Friend will be sent to any address desired. By this plan many may soon obtain enough subscribers to secure their own subscription free.

We trust that each one of our old subscribers will again be with us, and each and every one send a name with theirs. The more we are encouraged the better we can labor for the interests of the profession.

Traveling Photographers are supplied with a "coupon" receipt, which will allow them to receive the Friend wherever they may be located at the time of issue as regularly as those who are located permanently. By this new and original plan, all photographers may take the Friend.

TERMS FOR ADVERTISING.

	Per Issue.	Per Annum.		Per Issue.	Per Annum.
One Page.....	\$10 00	.....\$45 00	Quarter Page	\$4 00	.....\$18 00
Half ".....	6 50	..... 30 00			

RATES IN DEPARTMENT OF SPECIALTIES.

For each Line Small Type.....15 cents | For each Line in Capitals,..25 cents.

To those desiring positions as Operators, Printers, or other Photographic employment, card and address inserted FREE.

THE EXCHANGE COLUMN.

This column will be devoted to exchanges only. No charges will be made for inserting these notices, when articles are offered in exchange for other photographic goods. Articles offered for sale will be inserted in the Advertisement Department at our regular rates, 15 cents per line.

The Specialty Department offers the best opportunity for those desiring to purchase, sell or exchange, also for those desiring to employ or to gain employment, and for special reading advertisements. All advertisements and articles intended for publication, must reach us before the 10th of each month preceding our issue.

Address all communications in relation to the Friend, to

RICHARD WALZL,

46 N. Charles St., Baltimore, Md.

DISSEMINATORS

New Portrait Lenses!

ARE SUPERIOR TO ALL OTHERS.

TRY THEM AND BE CONVINCED.

CHAS. COOPER & CO.

150 Chatham Street, New York.

WHOLESALE AGENTS.



